

MOTOR AGE

SIX TEAMS STILL PERFECT IN THE GLIDDEN

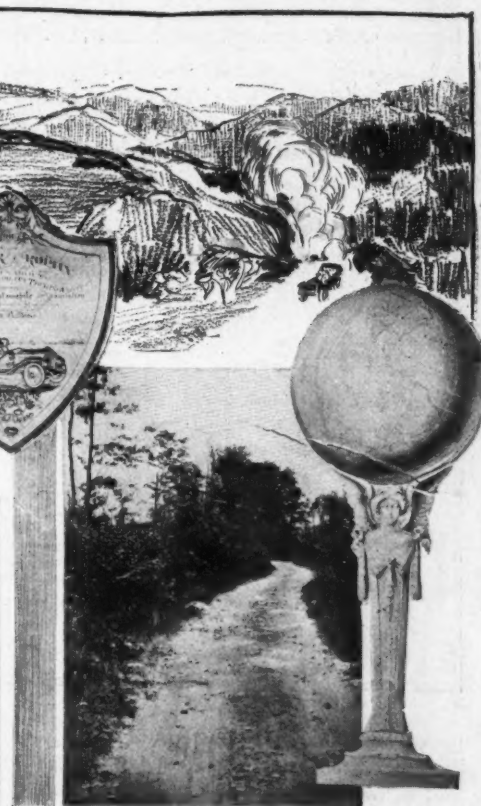


By DAVID BEECROFT

MILFORD, PA., July 15—Special telegram—Tonight 6 of the 12 running days of the Glidden tour are over and 706.8 miles, or 42 per cent of the total distance of 1,669.7 miles has been covered. Of the ten teams struggling for the Glidden trophy six are running with perfect scores, these being as follows: Buffalo team of three Pierce Arrows; Buffalo team No. 2, comprised of two Premiers and a two-cylinder Reo; Chicago Motor Club No. 1, made up of two Haynes and an Oldsmobile; Rochester club team No. 2, three Studebakers; the Bay State club, three Marmons, and the Columbus club, three Peerless cars. Of these six perfect score teams, the Pierce, Peerless, Marmon and Studebaker have teams all of their own and the Haynes, Oldsmobile, Premier and Reo are the other four makes represented. So with the tour half over there are eight makes of cars still on the ground floor and on equal footing for the trophy. The four teams that

TOUR STANDING JULY 15	
Glidden.	Points
Buffalo, Pierce.....	1000
Buffalo, Premier-Reo	1000
Chicago, Haynes-Oldsmobile	1000
Rochester, Studebaker	1000
Bay State, Marmon	1000
Columbus, Peerless	1000
Columbus, Peerless	1000
Chicago, Oakland-Rainier	997.6
Rochester, Thomas-Gaeth-Selden.	666.6
Syracuse, Franklin	666.6
Cleveland, Garford	664
Hower Trophy Perfect Score Cars—	
Two Pierce-Arrows, two Stoddard-Daytons, one Premier.	
Glidden Certificate Perfect Score Cars—Two Stevens-Duryeas.	

have been penalized are: Chicago Motor Club team No. 2, 997½ points, the team having but 2½ bad marks caused by No. 28, Oakland, having to replace a connecting rod after having burned out a bearing. Close on the heels of the Chicago club team No. 2 is the Cleveland team with 664 points, its loss being due to Van Tine's Garford being disqualified for breaking a wheel and Hurlburt's Garford getting 8 demerit marks on a broken rear axle drive shaft. The Franklin Syracuse team ties with the No. 2 Rochester team, each having 666.6 points and having lost out through broken springs, the Selden car putting the Rochester team down and the No. 14 Franklin lowering



the colors of the Syracuse team to the same extent. The two Stevens-Duryea cars, running for Glidden certificates, are in the perfect score brigade still.

Of the fourteen original Hower cars only five are perfect, namely, two Pierce Arrows, two Stoddard-Daytons, and one Premier. The nine Hower contestants to fall are: Three Overlands, and one each of the Gearless, Franklin, Stoddard-Dayton, Reo, Moline and Blomstrom. The Gearless hit a telegraph pole, the Moline cracked two of its cylinders yesterday, the gyroscope got hopelessly behind in time and was put out today by an accident. The Stoddard-Dayton broke its radius rod brackets in the mountains and lost time, due to a carburetor fire. One of the Overlands broke a rear axle out of Pittsburg, another broke its frame and the third, driven by Mrs. Shirley, withdrew at Harrisburg. The Franklin pulled out because of a broken spring. The Reo lost 12



Bedford and two spring leaves break in the Harrisburg-Philadelphia run. The Gabriel horn Oldsmobile broke a couple of springs and has had plenty of tire trouble. The Fisk tire car has been behaving excellently. It is a Locomobile runabout.

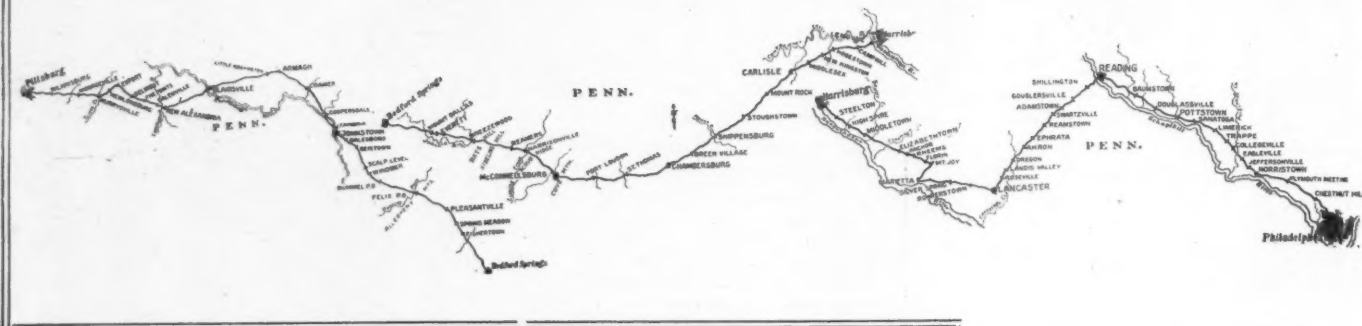
No. 113, the gyroscope car, was put out of the Hower contest late today by breaking a steering knuckle, going over an embankment and landing up against a telegraph pole. The accident occurred 5 miles north of Easton. Driver Chris White, of New York, seeing the danger jumped from behind the steering wheel and rolled 10 feet down the embankment where he was out of danger of the car hitting him. The mechanic, Corry, of Detroit, jumped and escaped injury. The car was literally wrapped around a telegraph pole.

Plans are practically completed for taking the 1909 Glidden tour west of Chicago, the route favored being as far as Denver, and embracing such centers as Kansas City, Omaha and perhaps Salt Lake City. The tour will be known as the silver tour because of political rumblings that emanated from west of the Mississippi a few years ago. Owing to

trant than it does at present. The scheme, chaotic as it is at present, will be a run from Lands End, the southernmost point of England, to John O'Groats, a point at the north of Scotland, and will embrace the most historic points of England, Scotland and Wales. It will take the tourists through the lake counties, give them a glimpse of the Scotch highlands, introduce them to the manufacturing and industrial England and familiarize them with the rural beauties of the Albion realm. Many are the reasons advanced for taking the tour abroad.

By J. C. WETMORE

Milford, Pa., July 15—Special telegram—With one-half of the distance outlined for the Glidden tour completed, the dust-covered caravan of over fifty cars, carrying their 200 and more passengers, rushed into Milford and stored at the official headquarters, the Bluff house. The first car arrived at 12:35. It had been a day of excellent macadam roads and delightful scenic surprises, the tourists being treated to a ride that will be long in their memory. The cars had been parked over night in the court yard of the city hall at Philadelphia and a large crowd



points on time. Thus the Hower fight is a three-cornered one at the end of the first half of the contest among the Pierce, Stod-even break among the three.

Of the five official cars in the tour No. 99, Chairman Hower's Pierce, has made a clean run, barring tire troubles. No. 96, the Packard Red Cross car, has had a few difficulties. No. 95, Motor Age Reo car, has run through clean and with commendable regularity. No. 97, Reo, as pilot, is in the running and has given a good account of itself, barring one breakdown. No. 98, Premier, on the Philadelphia-Milford stage, broke its front axle near the left spring seating by striking a road covered with loose rocks and later dropping into a hole at the end of a stony stretch. It will be repaired and continue on its role of pilot on the tour.

Of the five non-contesting cars all are in good running shape. The Fetch Packard press car has given an excellent account of itself. The Studebaker press car has had tire troubles. The Premier press or 100-century machine, had a valve guide get out of place between Pittsburg and

limited hotel accommodation, a few of the night stops will be camps in the open, which is looked upon most favorably by the tourists in the present run. The majority of the officials feel the east has had the lion's share of the tour, and that the west is due to have its innings. It is now up to the western clubs to get busy on the situation. But while 1909 is the silver tour, 1910 will be the golden tour and already plans are far perfected. The most startling feature of it as discussed at present is to make it a 2,000-mile run through England, Scotland and Wales. Charles J. Glidden, donor of the trophy, is responsible for the statement that arrangements can be made with the Cunard steamship line to give a special steamer of the Saxony type for the exclusive use of the tourists. Cars could be shipped across and back for \$25 each and passage for the tourists can be secured at \$100 per round trip. The entry will be limited to 100 cars and a fee of \$200 per car, the same as in the Glidden.

Taking the tour across the Atlantic will not call for any greater expense per en-



There were the usual number of lame ducks strewn along the roads but none of these was in serious difficulties. No.

The only really close escape from accident reported was a narrow miss when the big Pierce car No. 2 was grazed by a large red touring car that dashed in from a side road at high speed.

AUTOMOBILE CLUB OF BUFFALO—TEAM 1									
No.	CAR	ENTRANT	1	2	3	4	5	6	Total Pen.
1	Great Arrow	Chas. Clifton	0	0	0	0	0	0	1000
2	Great Arrow	Chas. Clifton	0	0	0	0	0	0	1000
3	Great Arrow	J. W. Maguire	0	0	0	0	0	0	1000
Total Club Score									1000
AUTOMOBILE CLUB OF BUFFALO—TEAM 2									
4	Reo	R. M. Owen	0	0	0	0	0	0	1000
8	Premier	R. M. Owen	0	0	0	0	0	0	1000
9	Premier	H. O. Smith	0	0	0	0	0	0	1000
Total Club Score									1000
CHICAGO MOTOR CLUB—TEAM 1									
19	Haynes	Frank N. Nutt	0	0	0	0	0	0	1000
20	Haynes	Loring Wagoner	0	0	0	0	0	0	1000
35	Oldsmobile	F. L. Smith	0	0	0	0	0	0	1000
Total Club Score									1000
CHICAGO MOTOR CLUB—TEAM 2									
15	Rainier	Andrew Cuneo	0	0	0	0	0	0	0
27	Oakland	J. B. Eccleston	0	0	0	0	0	0	0
28	Oakland	E. M. Murphy	0	7	0	0	0	0	7
Total Club Score									97.6
ROCHESTER AUTOMOBILE CLUB—TEAM 1									
10	Gaeth	Paul Gaeth	0	0	0	0	0	0	0
11	Thomas	Gus G. Buse	0	0	0	0	0	0	0
32	Selden	R. H. Salmons	0	0	0	out	out	out	out
Total Club Score									638.6
ROCHESTER AUTOMOBILE CLUB—TEAM 2									
24	Studebaker	E. V. Stratton	0	0	0	0	0	0	1000
25	Studebaker	E. V. Stratton	0	0	0	0	0	0	1000
26	Studebaker	E. V. Stratton	0	0	0	0	0	0	1000
Total Club Score									1000
BAY STATE AUTOMOBILE CLUB									
21	Marmon	Frank E. Wing	0	0	0	0	0	0	1000
22	Marmon	W. C. Marmon	0	0	0	0	0	0	1000
23	Marmon	W. C. Marmon	0	0	0	0	0	0	1000
Total Club Score									1000
CLEVELAND AUTOMOBILE CLUB									
29	Garford	A. R. Davis	0	1000	Disquali	fied for	putting	on new	wheel
30	Garford	A. R. Davis	0	0	0	0	8	0	8
31	Garford	A. R. Davis	0	0	0	0	0	0	0
Total Club Score									661
COLUMBUS AUTOMOBILE CLUB									
5	Peerless	E. H. Parkhurst	0	0	0	0	0	0	1000
6	Peerless	E. H. Parkhurst	0	0	0	0	0	0	1000
7	Peerless	E. H. Parkhurst	0	0	0	0	0	0	1000
Total Club Score									1000
AUTOMOBILE CLUB OF SYRACUSE									
12	Franklin	H. H. Franklin	0	0	0	60	0	0	60
13	Franklin	John Wilkison	0	0	0	0	0	0	0
14	Franklin	F. H. Stillwell	0	0	0	0	out	out	out
Total Club Score									666.6
HOWER TROPHY									
No.	CAR	ENTRANT	1	2	3	4	5	6	Total Pen.
100	Great Arrow	R. D. Garden	0	0	0	0	0	0	1000
101	Reo	R. M. Owen	0	0	0	0	12	12	12
102	Moline	W. H. Van Dervoort	0	0	0	51	0	0	51
103	Great Arrow	Charles Clifton	0	0	0	0	0	0	1000
104	Premier	Geo. A. Weldely	0	0	0	0	0	0	1000
105	Gearless	John Breyfogle	1000	Hit tel	egraph	post	first	day	out
106	Franklin	F. A. Borton	0	0	0	181	out	out	1000
107	Stoddard-Dayton	G. P. Moore	0	0	0	0	0	0	1000
108	Overland	E. W							

STORY OF THE TOUR FROM TWO VIEWPOINTS

By DAVID BEECROFT

CAMBRIDGE SPRINGS, PA., July 9 —Of the fifty-eight cars scheduled to leave Buffalo this morning on the fifth annual Glidden tour and the second tour for the Hower trophy fifty-six departed and fifty-five reached Cambridge Springs with perfect scores, the one to suffer penalty and drop out being No. 105, the Gearless runabout entered and driven by John Breyfogle, of Rochester. This car was eliminated when 3 miles east of Westfield. The driver, traveling at a fast pace, struck a round stone in making a curve which resulted in an unexpected skid that brought the machine, radiator end on, into a telegraph pole, bending the frame, breaking parts of the steering mechanisms and putting it permanently out of the running for the Hower trophy. Fortunately none of the party was injured. Soon after the wreck the machine was towed to the railroad depot where it was loaded on a car and shipped to the factory. Of the three passengers, the driver left the tour and the observer and Frank Barnett were taken on other cars to Cambridge Springs.

If all of the other fifty-five cars starting finished with perfect score sheets a few of them had regrettable troubles which, however, did not, according to the rules, bring black marks against them. First in this class was No. 12, Franklin, entered by H. H. Franklin and one of the Syracuse Automobile Club team. When nearing Silver Creek one of the leaves in the left rear spring broke without any warning and without any road irregularities warranting it. The good fortune of a nearby blacksmith shop brought immediate cheer to the members of the party who for a time thought the chances of the Franklin car, newcomers in the tour, for winning the trophy were too early blasted. The driver and mechanic, the only two permitted to make a repair on any Glidden car, were quick on the job and with forge and anvil mended the broken leaf, replaced it and after losing 30 minutes, made the schedule into Cambridge. It is rather unusual for Franklin springs to break; in fact such a happening was unheard of on the part of many in the tour. Full elliptic springs are used all around on these machines and during the many years they have been used they have established an enviable reputation for themselves.

Another little trouble of the day but which did not result in penalization befell A. L. Kull, entrant and driver of the Blomstrom gyroscope two-cylinder machine carrying No. 113 in the Hower end of the contest. When ascending a hill outside of Fredonia it was discovered that one of the brake connections had not had the cable properly coupled up and after making a stop on the hill the driver found

Motor Age is represented on the Glidden tour by David Beecroft and John C. Wetmore, the former reporting the mechanical features of the contest and the latter telling the general story of the big event.

it necessary to back down owing to the failure of the brakes. It only took a short time to connect the cable properly.

While mechanical troubles were very few, an unusual number of tire troubles occurred, the Motor Age Reo press car observing no fewer than six stops for tire troubles. A rather unusual feature of the tire troubles is the numerical sequence of the car numbers, Nos. 110, 111, 112, 28, 29 and 9 being those to have trouble. When traveling on Abbot road leaving Buffalo No. 111, an Overland runabout, was observed inflating the right tire; No. 112 was repairing a tire at Erie; No. 9 had to do the work when 20 miles out of Buffalo and No. 29 at Kearsage. In view of the good condition of the road as far as Erie it is remarkable how many tire troubles came on a first day's run, but wise ones declare it was due to fast traveling in a few cases and to poor inner tubes in others. Tire repairs are robbed of a few of their previous terrors by the general use of tire inflation tanks but what has been saved in this way has been lost because the rules make it imperative for the driver and mechanic to make all of the repairs and do absolutely all of the work connected with the repair to the extent of picking up a tool and handing it to the mechanic. With present conditions the impartial observer stands the actual czar of the situation and should a third party transgress to the extent of picking up a valve cap that rolls off the running board the force of the rules is brought into play. Not to be overlooked in tire repairing is the new rule which, if the motor is kept running while a tire repair is being made, the time lost in the

repair is added arbitrarily to the schedule. To explain: Should a car be due at the night stop at 4 o'clock and be delayed when within a mile of the stop by a tire blowout, calling for 20 minutes to replace it, the schedule immediately is lengthened, making the checking time 4:20. This depends on the motor being kept running; should it be stopped then the car must make up any time lost on tires. The rule has caused endless explanations at preliminary meetings and will continue to do so during the first few days of the tour. It is a good rule, however, and relieves that nightmare of having tire troubles when within a few miles of the control without much spare time and which was 2 years ago responsible for so many cars being eliminated from the perfect score ranks.

The schedule for the 117 miles was 5 hours 45 minutes for the big cars with 10 minutes extra added for the small Hower cars listing at less than \$1,500 and 10, 20 and 30 minutes extra respectively for Glidden contestants listing at \$2,250 to \$3,500, \$1,500 to \$2,250, and under \$1,500 respectively. The start from the Buffalo Automobile Club headquarters was purposely delayed until 10 o'clock in order that Starter Ferguson and Chief Observer Stidham might have a good opportunity to drill observers and drivers in what will be the daily routine to be gone through in taking a car out of the night parking space. With police assistance this was well managed and at 15 minutes before 10 the cars with drivers and observers in place were lined up along one side of Main street awaiting the start. The start was to be according to receipt of entries, the first received entry going first. Being No. 100 the Great Arrow runabout led in the Hower contest. Behind it were the three Great Arrow Pierces, Nos. 1, 2 and 3, constituting the team in the Glidden contest. Fourth position was occupied by R. M.



C. J. GLIDDEN AND TOUR OFFICIALS AT THE START OF THE BIG CONTEST

Owen in his two-cylinder Reo Glidden car with four passengers up. Ranged behind him were Nos. 5, 6 and 7, the three Peerless Glidden machines—forming the team of the Automobile Club of Columbus. It was noticeable how teams clung together; Nos. 29, 30 and 31, the three Garfords making up the Cleveland team, are together; Nos. 24, 25 and 26, the Studebaker aggregation, are in order and others such as Marmon and Franklin, are closely grouped. The rule permitting the carrying of but four passengers if desired in the big Glidden touring cars, was very closely observed, all of the big Pierce, Peerless, Marmon, Franklin, Garford and other machines carrying but this number. There were one or two exceptions: Paul Gaeth in his Gaeth car started out with five; so did No. 11, the Buse six-cylinder Thomas, but all others carried four, which was in marked contrast to the five and six carried in many of the contesting machines a year ago. In the Hower trophy candidates the Franklin, Reo and Blomstrom started out with but two but all others, from the big Pierce down to the three little Overlands, carried the three passengers. On many of the runabouts with the single bucket seat it was uncomfortable riding for the observer who occupied it. In a few cases handles on the back of the front seats offered a good holding space but in others these were absent. The observer on No. 111 Overland improvised a canvas strap, 4 inches broad, which was attached to the sides of the front seat and formed a support for his back. If bucket seats are sold for road use they should have sufficient back and sides as well as foot room so that the passenger has not to be strapped in place to make a reasonably safe trip. That is being demonstrated in a most convincing manner on the present trip.

At the end of today's run all of the ten contesting teams had perfect scores or credit marks of 1,000 points. These teams are: Buffalo Automobile Club, two teams; Rochester Automobile Club, two teams;



MRS. CUNEO AND MRS. SHIRLEY, THE TWO WOMEN DRIVERS



Chicago Motor Club, two teams; Syracuse Automobile Club, one team; Cleveland Automobile Club, one team; Columbus Automobile Club, one team; Bay State Automobile Club, one team.

The running time was as follows: Class A, \$3,500 and over, 5 hours 45 minutes=20.4 miles per hour. Class B, \$2,250 to \$3,500, 5 hours 55 minutes=19.8 miles per hour. Class C, \$1,500 to \$2,250, 6 hours 5 minutes=19.3 miles per hour. Class D, under \$1,500, 6 hours 15 minutes=18.8 miles per hour. Hower, over \$1,500, 20.4 miles per hour; under \$1,500, 19.8 miles per hour.

By J. C. WETMORE

Cambridge Springs, Pa., July 9—Seated upon the broad verandas of a commodious and urban-appointed resort hostelry set upon a hill with a wide perspective of hills and meadows 300 well-contented Gliddenites and Howermen are discussing tonight with satisfaction the outcome of the first day's run of the fifth annual A. A. A. test tour. Forty-six cars contesting for the touring car and runabout trophies and ten non-competing and official cars had left Buffalo in the morning and had reached Cambridge Springs with the loss of but one of their number—a six-cylinder

Gearless runabout, which had collided with a telegraph pole at Westfield, lost all its Hower trophy points and in fact had put itself out of the running for good and all. All of the other forty-five prize contenders had evolved from the day's run without penalization, having made the 117.4 miles' run in the 5 hours 45 minutes schedule time and without any replacement of parts. Had the boss of the run, however, not been a bit lenient under the rules there would have been several sufferers from too eager promptness or too cautious tardiness in crossing the finish line. The new rules, with their allowances for tire repairs and price differences, bothered some a bit, so Chairman Hower cancelled all errors since the cars were really all on schedule time, but warned all hands that in future ignorance of the law would excuse no one. It took a lot of time and explaining at the daily evening meeting of contestants and observers to get the new rules fixed in all minds. It is to be hoped, at least, that they are or there will be trouble before the run ends.

The legal speed limit schedule of 20 miles per hour had been easy to maintain with 56 miles of macadam between Silver Creek and Erie and the balance of the way at either end of this magnificent stretch over fair country dirt road, all for the most part over fairly level ground.

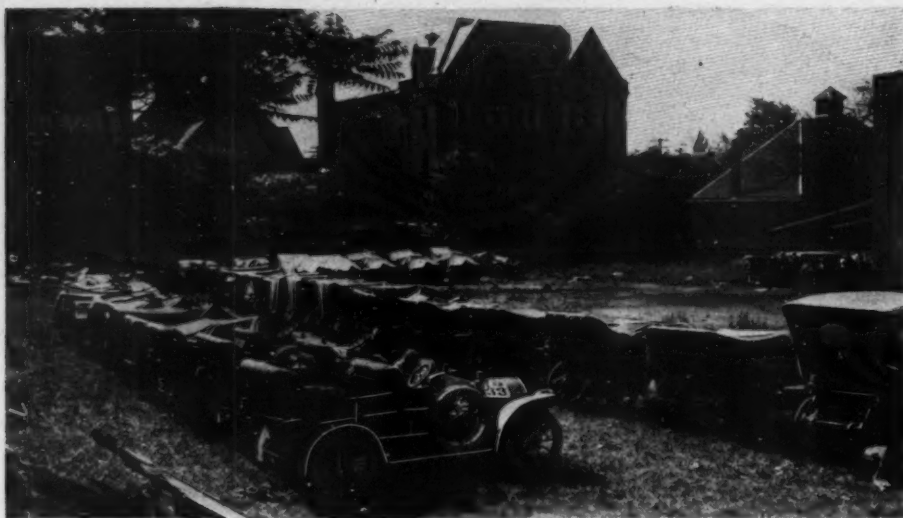
Buffalo gave the caravan a rousing send-off. For a half a mile from the starting point the street was a continuous grand stand of motor cars on either curb and fully 5,000 foot passengers joined in the bon voyage. The first car was sent away promptly at 10 o'clock from the Automobile Club of Buffalo in the Teck Theatre building and the forty-five others at 1 minute intervals thereafter.

By the roadside in South park, through which the procession passed out of the city, were series of motor cars parked to bid farewell. In fact, for miles out into the country were motor cars that had been driven out to see the tourists well on their way.

The day was sunny, yet cool, and the



CROWDS GATHER TO SEE START FROM BUFFALO



CARS GARAGED FOR THE NIGHT AT BUFFALO

scenery of appealing, gentle beauty. On either side were well-kept farms and thousands of acres of vineyards, while in the distance on the right one could see most of the way to Erie the deep blue expanse of Lake Erie, as beautiful and as impressive as any Atlantic or Pacific.

All along the roads the people had turned out to see the tourists pass. Rosy-cheeked, white-frosted girls waved graceful adieus. Small boys cheered and stormed every car that stopped, for cigar bands as souvenirs. At one place a bunch of lassies held aloft a gigantic canvas sign, "We Hope U Win." At Evans Center a hay wagon-load of damsels had driven down to see the fun. Tom Fetch made a hasty dismount and gave some photographers a snap-shot with Packard's Pride enviably ensconced in their midst.

In line there were not a few cars that merited and received attention. An Oldsmobile rigged with a Gabriel horn stirred up the countryside by playing popular airs and did not forget, of course, "In My Merry Oldsmobile." The Premier, which is making a century a day for 100 consecutive days, is making its present runs with the tour.

"El Toro," the first of the 1909 Packards, which won fame by its Cuban run last winter, was rigged with a close-coupled body and used as a press car with Tom Fetch as its pilot and F. C. Riggs in the role of mine host. The five passengers wore gray caps and dusters to match the gray body and their luggage was packed conveniently out of the way on the rumble platform in gray aluminum boxes. A Reo carried Motor Age's and the Automobile's mechanical and photographic staff and had Sales Manager Reuschaw for its pilot. It put its passengers on the spot for every emergency and caught the leaders at will when necessity required. A Reo and a Premier served as pilot cars. A Packard, with Russell Huff at the wheel, bore the Red Cross banner, carried a physician, and transported the starter and checker from start to

finish. The two watchmen were borne in Stevens-Duryeas, which started next to Chairman Hower and Charles J. Glidden in a Great Arrow, which acted as pace-maker.

There are two women contestants this year. Mrs. Joan Cuneo, of New York, is competing in a Rainier for the Glidden, and Mrs. E. W. Shirley, of Jamestown, N. Y., is in an Overland for the Hower trophy. Mrs. E. S. Berwick is Mrs. Cuneo's guest and Mrs. Howard C. Marmion rides beside her husband.

By way of illustrating the improvement of American cars in a few years it was recalled by old timers that a run of 91 miles from Buffalo to Erie was considered an ample day's journey for the Pittsburgh tour of 1903 and for the St. Louis run of 1904. This year Erie was reached by most of the cars in around four hours.

Turning from Erie inland the cars had a pretty run over a rolling country to Cambridge Springs, where the many Spring hotel and boarding house guests

gave the tourists a warm welcome. In fact, all the towns en route turned out to greet the travelers. At Westfield hundreds of bottles of cool grape juice were put in the cars by the Welch Grape Juice Co., which was an enjoyable treat.

SECOND DAY

Cambridge Springs to Pittsburg

By DAVID BEECROFT

Pittsburg, Pa., July 10—Three Glidden contestants were penalized today but the penalty against one was lifted by the committee, leaving the count but two, enough, however, to put two of the ten teams struggling for the Glidden trophy out of the perfect score class, the second Chicago Motor Club and the Cleveland club teams losing. The three losing cars carried Nos. 27, 28 and 29 and were two Oaklands and a Garford. No. 28, J. B. Eccleston's Oakland, was debited 2 points because a passenger other than the driver and mechanic poured some of the gasoline into the tank at one of the fuel stations. At first this was allowed to stand but the committee later decided to remove the penalty and also not to make it penalizable for any of the passengers to put in gasoline or water. This decision, rendered at the night meeting, was received with applause by all of the contestants. No. 28, Oakland, of the Chicago Motor Club team, burned out the lower bearing of a connecting rod and had to put in a new rod. This work was facilitated, due to the peculiar motor construction of the Oakland, which is a two-cylinder vertical power plant with removable cylinder heads. Removing the heads, with the access offered by side openings in the crankcase, gave sufficient room to take out the old and fit the new connecting rod without dismantling the motor, the driver and mechanic doing the work in a little over

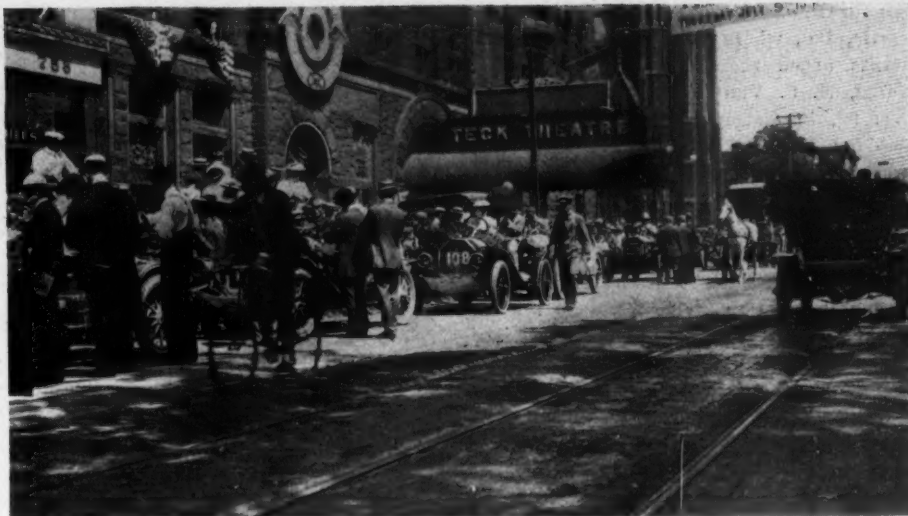


FIRST DAY ON TOUR—WOODED COUNTRY NEAR ERIE, PA.

1 hour. In spite of the delay the car made up all of its time but 4 minutes. Its total penalty was 7, 3 for the replacement, the connecting rod costing \$2.20, and 4 for the time. This gave a penalty of 2.3 against the team composed of the two Oaklands and Mrs. Cuneo's Rainier.

The Cleveland Automobile Club suffered more severely in that No. 29, Van Tine's Garford, was given the whole debit of 1,000 points because of the breaking of a wheel and replacing it with one not inventoried at the start of the tour. The accident occurred in the outskirts of Newcastle, Pa., through which town fast speed was made by many of the cars because of the encouragement given the drivers by the police and the demands made for speed by the thousands of citizens who thronged the streets. Leaving the city many right angled turns had to be made and after taking one of these the car was quickly swerved in order to avoid a pedestrian. This caused a bad skid, throwing the wheel against the curb and wrecking it. A new wheel was taken on a car in Newcastle and the car completed the day's run and will continue to the end of the trip. The entrant made certain protests to the committee against the disqualification on the ground that the accident was the result of a measure to conserve life. After a hearing the disqualification was allowed to stand. The remaining twenty-eight cars fighting for the Glidden trophy finished with clean scores, as did the two Stevens-Duryeas in the contest for Glidden certificates. Of the thirteen Hower trophy cars one, No. 113, the Blomstrom gyroscope, was given 296 points on time, it not reaching the checking station at Hotel Schenley, Pittsburgh, until 10 minutes to 10. The driver, A. L. Kull, reports the lost time due to five changes of tires that had to be made.

Many contestants that finished with



LINING UP FOR START FROM BUFFALO

perfect scores today had little troubles that caused lengthy delays but which were rectified without penalty. Undoubtedly not a few of these will result in penalties 1 or 2 days hence. Mrs. Shirley's Oakland runabout developed a leaky gasoline tank before reaching Mercer, where a stop was made and a little soldering done. No. 31, Hurlburt's Garford, met with an accident. A pet cock in the water system loosened sufficiently and turned around 90 degrees in which position it came in contact with the flywheel which broke it off. A wood plug was inserted which so far has given the very best of success. No. 4, Owen's Reo, developed a little rear axle trouble which was quickly rectified without penalty. A few other difficulties were noted along the road: No. 110, Overland, had the bonnet up 2 miles out; Stoddard-Dayton, No. 109, had what appeared to be motor troubles 11 miles out, and No. 25, Studebaker, was having some work done on it 40 miles

out when passed by the Motor Age Reo.

A most important feature of today's run, which Motor Age correspondent had an excellent opportunity of observing, was the way the cars performed on Kennedy's hill, a couple of miles out of Meadville. This hill is a winding ascent of over 1 mile with water gutters across the road, plenty of sudden 15 per cent grades followed by smaller grades and some good turns. Garden's Great Arrow was first to take it. He made half the ascent before dropping from direct. Arthur Kumpf, who followed him a few rods, took the hill the same way and a little later J. W. McGuire, in the third Pierce, went entirely up on the high. Burman, in his Peerless, made a nice high gear run of it and so did one of the Stevens-Duryeas. The air-cooled Franklins performed particularly well and passed other cars with facility on the hill. One of them took a Studebaker in tow when half way up the hill and on the steepest part of it, and another did the same trick with Frank Nutt in his Haynes. The sport on the hill was watched by scores of motorists who had come from surrounding towns eager to see what the tourists would do on a hill that gives the local motorists plenty of trouble. Mrs. Cuneo was loudly cheered as she made the ascent well up on the high and only changed when near the top. Mrs. Shirley was also well received in her little Overland. R. M. Owen, in his Reo, changed from direct when crossing a sidewalk across the road in the center of the hill and immediately went into high again and made it.

By J. C. WETMORE

Pittsburg, Pa., July 10—Today's run through the great steel mill towns of Pennsylvania was an ovation that continued during the entire latter half of the journey and culminated in a great demonstration in the Smoky City. The caravan arrived with its competing members assured by one more off the perfect score list and two others wounded by a



HOTEL AT CAMBRIDGE SPRINGS, FIRST NIGHT'S STOP

penalization. In passing through Newcastle, Pa., where the enthusiastic inhabitants urged the tourists to show their paces, H. S. Van Tine, driving Garford, No. 29, in dodging a man in the road, skidded into the curb and put its rear wheel out of commission. A new wheel was obtained from a car of the same make and fitted. This was a new part not carried and so the car had to be disqualified under the rules. Though it lost 2 hours in making the repair it made up all but a half hour. It was hard luck that the Cleveland team should lose its perfect score through a life-preserving accident.

Oakland, No. 28, burned out a connecting rod bearing and had to make a replacement, which cost it 3 points, to which 4 points had to be added for tardiness. A. L. Kull got in very late with the little gyroscope and was charged with 296 points. Overheating had been its trouble.

The run to-day called for 122½ miles in 6½ hours, an average of 19½ miles per hour. The original route was so changed that only the 44.6 miles to Mercer remained of the original. New cards were given out from Mercer to Sewickley, 10.32 miles, and from this point into Pittsburgh the tourists had only confetti and signs to rely upon. The journey was by no means an easy one. The 63.2 miles route to Newcastle was up and down short, steep, incessant hills all the way. Then came brick pavements through the towns with rough country roads between as far as Sewickley, whence there was fine macadam most of the way into town.

The wave of welcoming enthusiasm began to roll at New Wilmington. The town was literally smothered in flags and every man, woman, boy and girl seemed to have one to wave. At one point a long hedge blossomed with little flags and at another a building frame fluttered with scores of them.

All through this section the course was marked by the white flags of the Automobile Club of Lawrence County. Everywhere the girls had donned their white Sunday-go-to-meeting dresses. The chief enthusiasts, though, were the small boys, who are taking a significant interest in motor cars that will mean much in the future generation for the universality of their use, the building of good roads and the enactment of reasonable automobile legislation.

It was at Newcastle, though, that the enthusiasm of the welcome to the caravan reached its culmination. Sporting blood runs rich and red in Newcastle veins. All the intervening streets were roped off. At every one of the many turns of the sinuous route through town there was a flagman. Every policeman yelled, "Go on!" and every man shouted "Hit her up!" No wonder some of the drivers lost their heads and sped down the narrow lanes of spectators at 40 miles an hour. It was a kind Providence that saved the good Newcastle sportsmen



PREMIER MAKING CLIMB UP KENNEDY'S MOUNTAIN

from furnishing the dailies with head lines of a sensational nature.

At Quaker Valley, Edgewood and Sewickley the caravan entered Pittsburgh's suburban park residential districts. The macadam wound among the palatial country homes of the steel magnates. From this point the tourists were to rely solely on Dai Lewis' confetti trail; but Philip S. Flinn, a former perfect score Gliddenite, and his fellows of the Automobile Club of Pittsburgh, had put up sign boards all the way into town. For this they were thanked by special resolution at tonight's meeting of contestants at the Schenley.

Great crowds greeted the caravan with effervescent enthusiasm as it entered and passed through the Smoky City. Speed limits were thrown off and the police

joined in urging the drivers to "hit her up" just as they had at Newcastle. The weary travelers had a luxurious evening's rest at the Schenley. They dined on the veranda or lolled on the lawns while they listened to the classic strains of the famous Pittsburgh orchestra.

THIRD DAY

Pittsburg to Bedford Springs

By DAVID BEECROFT

Bedford Springs, Pa., July 11—Today's run of 106 miles over the mountains from Pittsburg to Bedford Springs did not prove the undoing of so many perfect scores as speculation had prophesied, the reason for this being the 7-hour schedule set for the big cars with the usual extra allowances of 10 minutes for the small Hower cars and 10, 20 and 30 for the smaller Glidden contestants. Only two of the Glidden cup rivals had trouble, No. 19, Frank Nutt's Haynes, losing the center bolt out of one of its springs. As yet it is not known whether Nutt will receive a penalty or not, owing to the fact that he took the spare bolt used out of the sealed bag containing extra spare parts which would entail a penalization of 1 point. After his arrival here Nutt declared he has one of these bolts in his regular parts bag and if so he will be allowed to use it and will not be penalized, as the use of regular spare parts does not entail any debit marks.

Not so fortunate, however, was William Hurlburt driving No. 31, Garford, which broke one of the drive shafts in the floating rear axle. In all 1 hour and 45 minutes was needed in removing the old shaft and replacing the new one. After this was done, Hurlburt gave an excellent demonstration of road driving, succeeding in beating the 7-hour schedule by 8 minutes, showing he had negotiated the 106 miles of mountain traveling in 5 hours 7 minutes or at over 20 miles per hour, a wonderful performance considering the



LOCKWOOD IN THE MOUNTAINS



MOLINE ROADSTER BOWLING OVER A MOUNTAIN ROAD

long mountain climbs, the tortuous mountain descents, the scores of waterbreaks and the frequent stretches of road on which loose stone and dirt were piled. Hurlburt's total penalty has not yet been placed. This Garford trouble, taken in connection with that experienced by Van Tine's Garford, No. 29, Friday, when a wheel was broken, puts the Cleveland club in bad shape. These two troubles do the cars an injustice because all three were new from the factory and had not been run or limbered previous to the start from Buffalo on Thursday morning.

In the Hower ranks, five cars came to grief, four of which received penalties. No. 108, Mrs. Shirley's Overland, was penalized 9 points for time; No. 109, Stoddard-Dayton, entered by H. C. Tiltonson of Chicago, was debited 168 points on time, the trouble arising from the gasoline around the carburetor igniting from a short circuit on the magneto. In this car the carburetor, magneto and timer are grouped on the left side and the vapor formed from a leak in the carburetor quickly ignited when a short circuit took place. The mechanic's hands were severely burned in extinguishing the blaze which was confined to the motor. Dr. Hoag, in the Red Cross Packard, fortunately was near at hand and dressed the wounds. The car continued its trip. This car also suffered a fracture of the two brackets to which the forward end of the radius rods attach. These brackets are bolted to the side members of the frame and new ones which were carried in the spare equipment were used.

No. 111, Overland, broke a rear axle a short distance out of Pittsburg, and took the full count of 1,000, the car discontinuing the tour. The accident occurred when on a fairly good road, the rear wheel spreading, the differential case settling to the ground. A. L. Kull's Blomstrom gyroscope, No. 113, checked out of Pittsburg but did not reach Bedford until after midnight. The brakes are in

bad shape and frequent stops were made by the driver to take on water.

Today's list of car troubles, which did not land them in the penalization column, was rather heavy. No. 106, a Franklin runabout in the Hower trophy, broke all the leaves but one in the rear spring and No. 32, Selden, one of the members of the first Rochester team, broke all of the leaves in the front spring. The report is current tonight that this car will withdraw from the contest but as yet the officials have received no notification to this effect. Gus G. Buse's Thomas, No. 11, also a member of this Rochester team, cracked the expansion chamber into which the exhaust pipes lead. This occurred when passing over a waterbreak at which time the mud apron was crushed upwards against the expansion chamber which is

carried low down at the side of the motor. There is no reason why the car cannot continue without having the expansion chamber repaired. In addition to these somewhat serious troubles were the usual number of minor ones. No. 39, the Premier hundred century car, stalled on the road with ignition troubles and had to be pushed to the side. The trouble was quickly righted and the car is running in its old time form. Reo, No. 101, had ignition difficulties which detained it for some time. Tire troubles occurred everywhere, the loose stones working particular havoc all along. When but a short distance out of Pittsburg, Foster's Gabriel horn car had to change a left front casing. No. 9, H. O. Smith's Premier, had tire difficulties just before starting the mountain climb. No. 95, the Motor Age Reo, changed a right rear casing in the mountains, and No. 38, the Fisk car, reported changes of tires made at many points along the course.

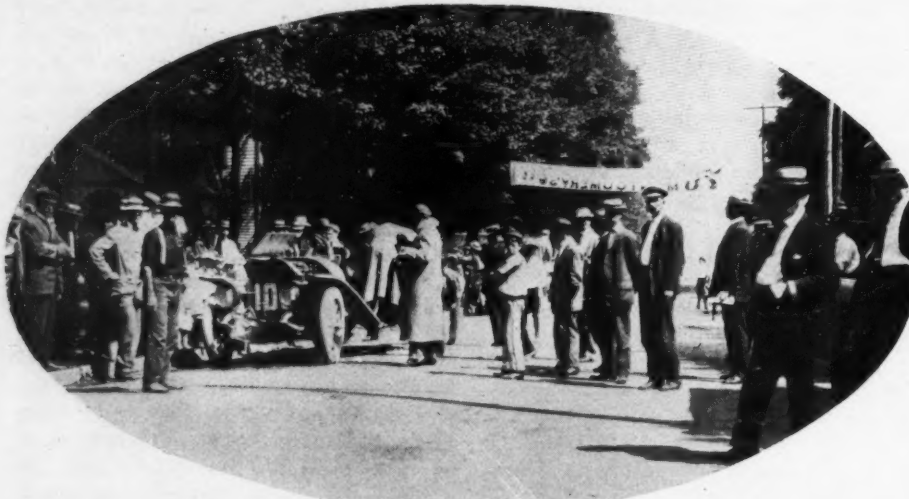
Today's run was one of the hardest of the contest so far, and it is gossip here tonight that none of the succeeding days of the tour will approach it. There are longer day's runs scheduled, some reaching the 194-mile mark, but these will be over good road surfaces on which cars can make fast time. In today's climb over the Alleghenies, the road for miles was but a sandy trail with stone bottom winding between acres of burned woods at one place and dense forests whose branches formed a continuous arch across the roadway and brushed the heads of the drivers and passengers at other places. The roads twisted and contorted every 50 or 200 feet and were crossed by improvised bridges whose planks got out of place after the first car or so had crossed. On these roads the waterbreaks were not so omnipresent as on the course followed a year ago but what was gained by their absence was more than compensated for by the masses of huge broken boulders over which the cars had to travel with the danger of one or two punctures while going over them. All told, the trip this year between Pittsburg and Bedford Springs is much more scenic than that of a year ago and more difficult in places but averaging up about the same. Had the weather been wet many of the cars would have had great difficulties. The 65-mile run from Pittsburg to Johnstown offered the greatest variety, even surpassing that of the mountains which were crossed in the Johnstown-Bedford part of the trip. After leaving Pittsburg the road winds through fields up and down hills, across creeks, indulges in sharp, hairpins and loses itself on wooded hillsides. The 9 miles into Johnstown, however, erase the memory of the earlier stages. This part of the road is a shelf on the cliff overlooking the Connemara river which winds through the valley 500 feet beneath. Paralleling the river is the right of way of the Pennsylvania railroad and



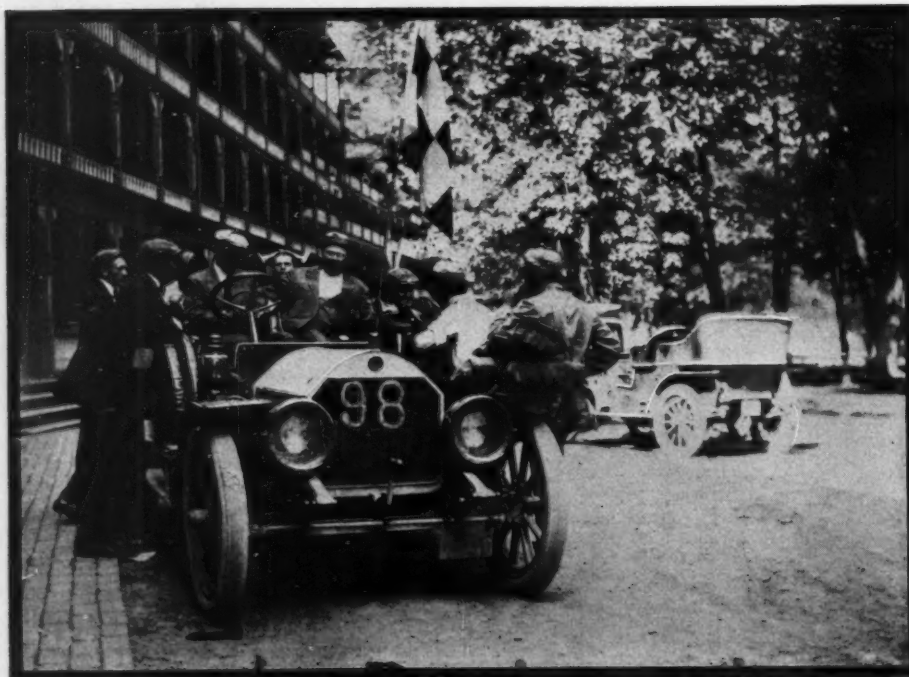
REO PASSES THROUGH MERCER



WAITING FOR THE TOURISTS TO GO THROUGH MERCER



ROADSIDE TIRE REPAIR



OFFICIAL CAR AT LINE AT BEDFORD SPRINGS

beyond the forest-clad hills which in places pierced the cloudless skies. Entering Johnstown, the tourists became reminiscent with the inhabitants over the disastrous flood of a few years ago and not a few of the non-contesting cars spent an hour or more refreshing their memories with stories related by the natives of that memorable disaster.

Today's run of No. 95, the Reo Motor Age press car, driven by R. C. Smith, was a wonderful performance for a small two-cylinder car carrying a load as heavy as the biggest Glidden contestants. With its party aboard it left half an hour in advance of the first Glidden cars and made the run to Johnstown, 65 miles, in 3 hours 55 minutes, or at $16\frac{1}{2}$ miles per hour. The schedule for the big cars was only 15 miles per hour. So well did the car run that it reached Johnstown 10 minutes ahead of the first Glidden contestants, showing it made the trip in but 20 minutes more than that of the biggest machines, a truly wonderful performance for a small machine. It took miles of the mountain climbing on direct drive and could have taken more but for the water-breaks that infested the course.

By J. C. WETMORE

Bedford Springs, July 11.—The run today carried the caravan across three mountain ranges of the Alleghenies with magnificent scenic surroundings, but—oh! such roads! A new and tougher path by far than that of last year was laid out, yet hard-hearted Hower cut the running time from 9 to 7 hours, giving an average of 17 miles an hour for the run of 106.4 miles. There was only one knock out for all that—the No. 111 Overland runabout, driven by C. R. Forth, which hit a rut just out of Pittsburg and went down and out with a broken axle. A leaky carburetor exuding gasoline in the neighborhood of the magneto caused a bad fire on Stoddard-Dayton runabout No. 109, which cost it 168 points. Overland runabout No. 108 failed to make the schedule by 9 minutes, and A. Z. Kell's gyroscope did not get into camp until 1 o'clock.

This was not near the total of casualties and penalizations to be reasonably expected from such a day's pushing up mountain, pounding over rocks and hammering bumps by 803—some one claims to have counted them—thank-ye-marms. There were some noteworthy fast runs made. W. Hurlbut was delayed an hour and a half and was forced to cover the course in 5 hours 7 minutes to escape time penalization, and the other Garford, which is now running as a non-contestant, was driven by Van Tine over the last 26 miles in 59 minutes.

The enviroing scenery was varied and roughly picturesque most of the way. One beautiful stretch of macadam which ran through the Connemaugh valley into Johnstown gave a view of a dark green stream below shut in by high, steep mountain sides. We of the "El Toro"

outfit lay over in Johnstown for dinner and were shown the water mark on the Capital hotel and told by mine host the thrilling story of the great flood which cost 3,000 lives.

Out of Johnstown a 4-mile climb gave a taste of what was ahead before the two intervening mountain ranges should be surmounted. Then followed the long pull over the Alleghenies. To take it sanely at reasonable touring speed required 2 hours for the double climb and bumpety-bump descent of 22 miles. Many contestants covered it in close to half that time. J. M. Murdock, of Packard transcontinental fame, a resident of Johnstown, who is here with the tourists, says that 7 hours, the schedule time, is considered a mighty fast run from Pittsburgh to Bedford by the biggest and best cars.

Descending the mountain sides there were beautiful prospects of broad, cultivated valleys and distant hills. A pretty stretch of macadam running through a narrow valley hemmed in by steep wooded hills brought the caravan to the Bedford Springs hotel.

By J. C. WETMORE

Bedford Springs, Pa., July 12.—This old-fashioned resort hostelry, nestled in an umbrageous little valley with green tree-shaded lawns, formed an ideal spot for a rest from the 3 days of road battling that have passed and the week of highway campaigning that is ahead before Boston's haven of 2 days of rest is reached next Friday night.

There was today the luxury of a late breakfast. Then came a 2 hours' frolic in the swimming pool. A few—very few—took rides in their cars. The one strenuous machine was the Premier press car, which by H. O. Smith and Fate has been condemned to a 10,000-mile treadmill made up of 100 consecutive centuries. It made a semi-century morning and afternoon and reached, if the writer's tired memory serves him aright, its forty-ninth hundred-mile run today.

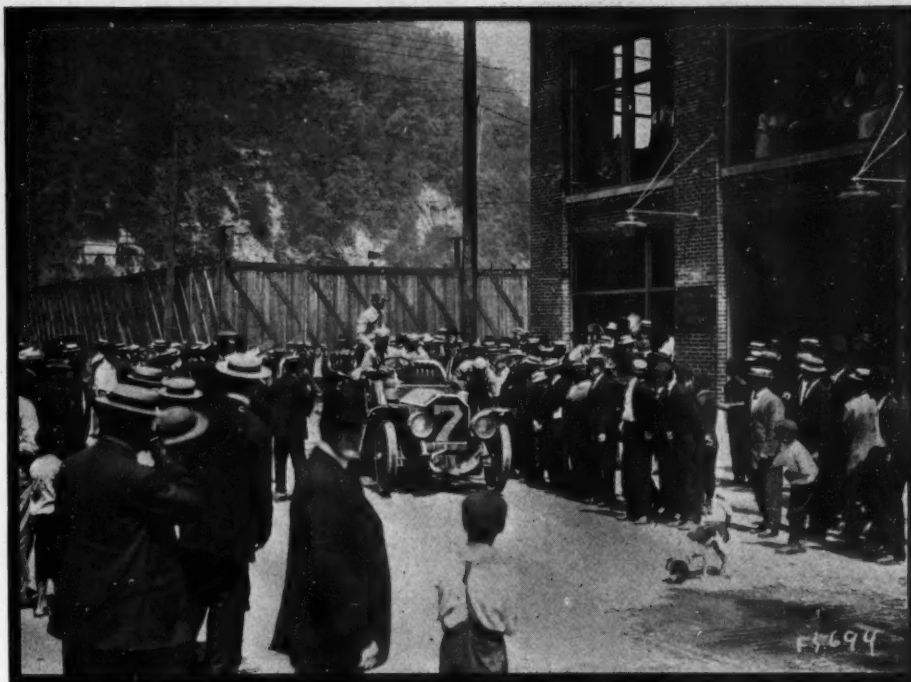
The newspaper men alone were forbidden to join the loiterers. They had lost time to make up and thoughts to put to print, the inspiration of which had hitherto been robbed by long days of hard riding. So far there has been harmony and penalizations have been accepted without strident protest.

FOURTH DAY

Bedford Springs to Harrisburg

By DAVID BEECROFT

Harrisburg, Pa., July 13—This was calamity day in the Glidden and Hower ranks, two of the perfect score teams falling from grace and three of the perfect score Hower runabouts being eliminated. The Syracuse Automobile Club has 20 demerit marks chalked up against



NO. 7 PEERLESS AS IT APPEARED AT JOHNSTOWN



MONTGOMERY GASOLINE STATION



MARMON AT JOHNSTOWN



GARFORD CAR SHOWS ITS HILL-CLIMBING ABILITY

it, due to No. 12, Franklin touring car, being 62 minutes late, for which it received 60 points. The cause of the trouble was due to the breaking of the rear spring that snapped on the first day's run near Fredonia and which was so quickly welded. Today it broke in the same place, and the repairing cost 60 points which counts 20 against the club, making its mark 940. Although the spring has been rewelded, the driver is doubtful as to whether it will endure much longer. Much talk has been occasioned because of the Franklin spring trouble and not a few of the tourists ascribe the trouble to not equipping the machines with shock absorbers. The other club to suffer was the Rochester one, composed of the Gaeth, Thomas and Selden, the Selden being the offending member, its troubles resulting from the breaking of all of the leaves of a spring on Saturday's run to Bedford Springs. The car was several minutes late in checking in, receiving a time penalty which of course damaged the score of the club. This leaves only seven perfect score teams in the Glidden cup struggle, namely: Two Buffalo teams, first team of Chicago Motor Club, the Studebaker-Rochester team, the Marmon team under the colors of the Bay State Automobile Club and the Columbus club, which aggregation is composed of the Peerless cars.

The three to fall in the Hower ranks were: No. 102, the Moline runabout, that was held up within 3 miles of Harrisburg, due to motor troubles and was penalized 51 points on time, the motor trouble not calling for any replacements of parts. No. 106, the Franklin runabout, had trouble because of breaking one of its springs in the Saturday run. Today, when 3 miles out, a bumper was made from some old tire casings and inner tubes; and when 20 miles out the only remaining good leaf broke a block of wood

and other parts were used in effecting a repair. It got 181 points on time. The Overland roadster, No. 110, ran in hard luck, breaking its frame and having to seek a blacksmith shop where a repair was effected. As yet it is not known what time the car checked in and what is its penalty. According to the rules as interpreted by Chairman Hower at Sunday night meeting at Bedford Springs, a frame

quenching the flame. The greatest loss in this connection was the time spent in removing the sand. This was not sufficient, however, to make the machining late in checking in tonight. No. 111, Overland runabout that broke its rear axle on Saturday's run, has had the axle repaired, the driver and mechanic doing the work in a blacksmith shop. This done, the car made the run to Bedford on Sunday and is today following the tour, of course unofficially and without an observer.

The Hower perfect scores are now reduced to six, consisting of two Pierces, a Reo, a Premier and two Stoddard-Daytons—quite a reduction.

Today's run was characterized by an unusual amount of tire troubles, the Reo Motor Age car observing no fewer than eleven cases of trouble, these being Nos. 1, 5, 7, 16, 99, 29, 35, 31, 22, 100 and 18. The most disastrous tire trouble was that of the chairman's Pierce which occurred just out of Carlisle. The chairman's car had not much of a lead on the contestants today, being but 17 minutes ahead of the first car when 40 miles out and at the summit of Cove mountain. This lead was gradually cut down so that when the tire trouble came a dozen of the contestants were up on him before the repair was completed. The contestants were not allowed to pass and so formed in line and waited until the chairman's car was ready to proceed. The two Reo contesting cars had battery troubles, R. M. Owen's car, No. 4, a Glidden contestant, being held up at the starting point. New batteries were installed and they proved to be absolutely dead. Owen had to scurry around for a fresh set. During this time Lockwood, driving the Reo runabout in the Hower, was having practically identical troubles. The rules permit fitting new batteries without penalty.

The non-contesting Oldsmobile entered in the interests of the Gabriel horn, ran into hard luck when just across the mountains, breaking leaves in two springs and having tire troubles. The accidents delayed it so it was not on hand to lead the procession of cars into Harrisburg as it has done at other night stops. All along the road the people were asking for the "organ" car.

Today's run has been a paradox to most of the tourists, the majority of them feeling that Saturday's hard mountain grind



FOUR OF THE PIERCE-ARROWS

was the end of the difficulties. As today has proven, it was not. Today's heavy penalty list, the heaviest since the tour started, was not due directly to the day's run but rather to the punishment the cars received last week. This was predicted by a few of the entrants, although denied by many of them. It is nevertheless a fact that a car weakened by mountain work will sooner or later break down. Many of the entrants drove unusually reckless down the mountains and the unexpected waterbreaks jarred their cars more than 100 miles of rational touring.

This brings to mind the work of many of the drivers in the run and it is pleasing to know that soon America will have a lot of drivers of the first rank. The good drivers are not taking chances and it is a safe prediction that they will bring their cars through clean. Charles Burman has his Peerless team well under control. He leads every day and his pace is a most moderate one. The Pierce team is well marshalled by Teddy Day but he has been setting a very fast pace of late. He took some of the mountain roads particularly fast today. The Pierce car is well fitted to withstand rough work but there is little use in administering unnecessary punishment. A change was noted in the pace of Arthur Kumpf in his Pierce, he taking a most moderate clip down the long mountain descents. The three Marmon drivers are showing much greater care than earlier in the tour. Bate, driver of Franklin, No. 14, is one who is making friends because of his shrewdness and conservatism.

Today's run was an interesting one of 107 miles, the first 40 of which was over three ranges of mountains, and the last 70 over good macadam roads beset with unnecessary waterbreaks on the ascents and descents and particularly at those points where there was a desire to speed. The Motor Age car set out an hour before the first contestant and took its position on Cove mountain range, which is a 4-mile climb to the summit and as long a drop. This point was reached before 9 o'clock, the car having made a 15-mile average over the mountain roads. Promptly at 9 the chairman's pacemaker car arrived and it was interesting to await the arrival of the others. Exactly 17 minutes after one of the Stevens-Duryeas arrived and the others followed at the following intervals:

Marmon, 9:24½; Pierce, 9:25; Marmon, 9:31; Stevens-Duryea, 9:32; Studebaker, 9:34; Thomas, 9:36; Peerless, 9:38; Oldsmobile, 9:40; Peerless, 9:40; Franklin, 9:44; Rainier, 9:45; and the others followed at minute intervals. The majority of them approached the summit at a fast clip, some of them exceeding 25 miles per hour. On the descent, which was filled with waterbreaks, the majority zigzagged



ONE OF THE PEEPLESS CARS NEAR PLEASANTVILLE

Pierce, 9:20; Marmon, 9:22; Pierce, 9:24; so as to angle the breaks and those who did did not suffer. The mountain descent is a 19-minute coast. Many of the drivers cut the spark out and use the motor as a brake. Others depend solely on their brakes. Very few burning brakes were noted, only two cars appearing to suffer trouble on this account.

The club and team standing tonight is as follows:

	Points
Buffalo team, No. 1.....	1,000
Buffalo team, No. 2.....	1,000
Chicago Motor Club team, No. 1.....	1,000
Chicago Motor Club team, No. 2.....	997.6
Rochester Club team, No. 1.....	666.6
Rochester Club team, No. 2.....	1,000
Bay State club.....	1,000
Cleveland club.....	663
Columbus club.....	1,000
Syracuse club.....	666.6

By J. C. WETMORE

Harrisburg, Pa., July 13—The 107.3-mile run from Bedford Springs was almost a repetition of Saturday's journey from Pittsburg. Though two-thirds of the journey's end into Harrisburg was over a fairly good macadam and in fact stone roads ran most of the balance of the way, there was a far more constant pounding over waterbreaks at an average of 200 feet intervals and the long climbs up Mount Dallas and Mount Cove were through long stretches of heavy sand. The 6-hour schedule calling for an aver-

age of 18 miles an hour played the mischief with fast running the first third of the trip and gave the cars a hammering.

In the face of such a journey no little havoc was wrought on the perfect score slate. Two teams in fact dropped back into the ruck of the also rans. The Syracuse and Rochester trios evolved with a car apiece penalized. Franklin, No. 2, driven by C. H. Talbot, which had broken and mended a spring the first day, stopped at Harrisonville to weld a new spring leaf under the amended rules permitting new parts to be made out of raw material and arrived so late that it lost 61 points. The Selden, which also had had trouble with its springs, was very, very late. It was withdrawn because of losing 1,000 points but it will continue as a non-contestant.

The Hower runabout perfect score division was still further decimated. Franklin, No. 106, piloted by J. H. Daly, broke several front spring leaves and suffered a penalty of 181 points. Moline, No. 102, driven by W. H. Vandervent, sprung a leak in its cylinders 3 miles outside of Harrisburg and was penalized 51 points. It is hoped, however, that the leak can be plugged so that the car can continue.

Today's journey was another day's run through magnificent mountain country. The long hard pulls of 3 or 4 miles up the sides of the Blue Ridge range had their compensation during the winding descents of glorious panoramas of broad, farm-checked plains, or picturesque valleys, with green, wooded hills sometimes in the foreground and at others blue mountains in the distance.

Old Chambersburg was reached and historic rebellion days' ground was traversed. Before and after the battle of Gettysburg the Yanks and Johnny Rebs fought through the streets of the old town, part of which the Confederates



THREE MARMONS ON BAY STATE TEAM



AFTER LEAVING PITTSBURG

burned in their retreat. The caravan passed also close to the buildings of the Indian school and also of Dickinson college at Carlisle. All this was very interesting, but all the tourists asked why in the mischief Frank Hower had taken it into his stubborn head to cut them off from a view of the famous Gettysburg battlefield, which was only 25 miles away.

There was the same enthusiastic reception that marked the first 3 days of the journey. The Chambersburg Motor Club not only stretched a banner, "A. A. A.—We Hope U All Will Win," across the road, but built a triumphal arch inscribed "Welcome" on the main street. It was a refreshing sight that made one realize he was out in the real country to see the calico sunbonnets of the women and the blue jeans of the men so universally prevalent outside the towns.

The Gabriel horn car, piloted by C. H. Foster himself is adding much life to the tour and stirring up the countryside in great fashion. All through the towns the pianist hits up lively airs and gives the people a listening knowledge of "The Gang's All Here," and the latest Broadway musical comedy songs. That live wire bunch, the Motor Club of Harrisburg, is giving the tourists a smoker tonight. The caravan is split between two hotels, the Lochiel and the Metropolitan. The former is the official hostelry.

FIFTH DAY Harrisburg to Philadelphia

By DAVID BEECROFT

Philadelphia, Pa., July 14—Special telegram—For the first time since the start of the tour all of the Glidden and Hower contestants have made the run with perfect scores, there being not a single example of a car arriving late at the check-

ing station or having to make a replacement of parts. This does not include No. 102 Moline that cracked two cylinders entering Harrisburg yesterday. It checked out today and was last heard from at Reading, Pa., where it was held up repairing a leaky radiator. It will continue. Owing to this perfect score day's run, over 133.5 miles of rolling macadam roads with occasional water breaks the team scores in the Glidden contest remain as they were yesterday, which is as follows:

	Points
Automobile Club of Buffalo, Team 1...	1,000
Automobile Club of Buffalo, Team 2...	1,000
Chicago Motor Club, Team 1.....	1,000
Chicago Motor Club, Team 2.....	937½
Rochester Automobile Club, Team 1...	866.6
Rochester Automobile Club, Team 2...	1,000
Bay State Automobile Club.....	1,000
Cleveland Automobile Club.....	864
Columbus Automobile Club.....	1,000
Automobile Club of Syracuse.....	666.6

The Hower standing is as follows:

No. Car	Points
No. 100—Great Arrow	1,000
No. 101—Reo	1,000
No. 102—Moline	949
No. 103—Great Arrow	1,000
No. 104—Premier	1,000
No. 105—Gearless, withdrawn first day.	
No. 106—Franklin, no points; continues as non-contestant.	
No. 107—Stoddard-Dayton	1,000
No. 108—Overland, withdrawn; continues as non-contestant.	
No. 109—Stoddard-Dayton	832
No. 110—Overland	698
No. 111—Overland, withdrawn; continues as non-contestant.	
No. 112—Stoddard-Dayton	1,000
No. 113—Blomstrom, withdrawn, continues as non-contestant.	

For Glidden certificates:

No.	Points
No. 16—Stevens-Duryea	1,000
No. 17—Stevens-Duryea	1,000

Although today's run was bereft of penalizations, not a few unusual incidents have arisen to be of sufficient import to satisfy the gossipers of the tour for one evening. William Hurlburt's No. 31 Garford, when making too fast time on the stretch of road today, struck a water break with sufficient impact to hurl one of the tonneau passengers out, who, landing rather heavily on the ground, suffered a slight scalp wound and a bruised shoulder. Oakland car No. 28, one of the contestants on the Chicago Motor Club team No. 2 for the Glidden trophy, in taking a water break too quickly bent the front axle badly. The driver and mechanic sought a blacksmith shop, where the axle was removed, heated, reformed and replaced in the phenomenally short time of 52 minutes. The car checked in on time.

No. 39, the Premier 100-century car, broke a couple of springs and suffered a puncture, causing considerable delay. This is a non-contestant car and it is expected that the springs will be replaced tonight and the car started off in first-class shape tomorrow morning. This car finished yesterday over 5,000 miles.

Today's score of tire difficulties was particularly heavy, which may be accounted for by the hot macadam roads and the frequent swerves required in taking the water breaks at an angle. No. 104 Premier made two changes of tires; Chairman Hower's car was held up in the same manner as yesterday, necessitating a delay of the



SPECIMEN MOUNTAIN ROAD

contestant cars that had caught him. No. 100 Pierce had a puncture. The Studebaker press car suffered three punctures. No. 17 Stevens-Duryea, a contestant for a Glidden certificate, had trouble, as had not a few of the others, including one of the Marmons.

A day of perfect scores naturally turned the attention to the student of the tour to the work the perfect score cars have had to do from day to day during the first 5 days of the tour. J. C. Kerrison, representative of a Boston newspaper on the run, and who rides in a Pierce-Arrow, driven by McGuire, says that not a drop of water has been put in the radiator of this car since it left Buffalo. Paul Gaeth, driving the Gaeth car, states that he has not had to do anything by the way of repairing or adjusting to his car since the tour started. This story applies to the Peerless team under the management of Charles Burman. The Marmon team is making a most favorable impression, as is the combination Premier and Reo team. The Chicago Motor Club team No. 1, composed of two Haynes cars and an Oldsmobile, is still in the perfect score category, the cars having run so far without an attention further than the usual overlooking and lubrication.

By J. C. WETMORE

Philadelphia, Pa., July 14—Special telegram—By contrast with the preceding 2 days of mountain-climbing and bumping the water breaks over the Allegheny and the Blue Ridge ranges, today's run from Harrisburg was a restful joy ride. A run of 133 miles in 7 hours over such easily navigable stone roads as those of today was mere child's play for the cars. The journey was accomplished without a single perfect score car losing its place on the clean slate. In fact, only a single car

SPEEDOMETER REPRESENTATION

No.	Make.	No.	Make.
1	Jones, Warner	29	Jones, Warner
2	Jones, Warner	30	Jones, Warner
3	Hoffecker, W'm'r	31	Jones, Warner
4	Jones	32	Jones
5	Jones, Hoffecker	33	Warner
6	Jones, Hoffecker	34	Warner
7	Jones, Hoffecker	35	Warner
8	Jones, Stewart	38	Warner
9	Jones, Warner	39	Jones, Stewart
10	Jones	95	Jones
11	Warner	96	Jones, Warner
12	Jones	97	Jones
13	Jones	98	Jones, Warner
14	Jones	99	Hoffecker, W'm'r
15	Jones	100	Jones, Warner
16	Warner, Jones	101	Jones
17	Warner, Jones	102	Warner
18	Warner	103	Hoffecker, W'm'r
19	Warner	104	Jones, Warner
20	Warner	105	Jones, Stewart
21	Warner, Jones	106	Jones
22	Warner, Jones	107	Jones, Warner
23	Warner, Jones	108	Jones, Warner
24	Warner	109	Jones, Stewart
25	Hoffecker	110	Jones, Warner
26	Warner	111	Jones, Warner
27	Warner	112	Jones, Stewart
28	Warner	113	Stewart

SUMMARY

Thirty Glidden Contestants

Jones	22	Hoffecker	5
Warner	18	Stewart	1

Two Glidden Certificate Cars

Warner	2
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Fourteen Hower Trophy Cars

Jones	11	Hoffecker	1
Warner	8	Stewart	4

Five Official Cars

Jones	4	Hoffecker	1
Warner	3		

Five Non-contestants

Warner	4	Stewart	1
Jones	1		

GRAND TOTALS

Jones	37	Hoffecker	7
Warner	35	Stewart	6

suffered penalization. The Moline had hard going with its cracked cylinders, but it managed to get into town around 9 o'clock with its two remaining ones doing the work. It had also stopped to mend its radiator. No 19-mile an hour gait over

macadam roads will eliminate the American cars of today. The contestants for the most part arrived from 1 hour to close to 2 hours ahead of schedule time.

A seat on the rail was not safe enough to prevent Ben Smith, who rode as mechanic for Billy Hurlbert, being tossed out of the Garford's tonneau at the pace this terror was pushing it. He has a cut cheek and a bruised shoulder as his souvenir. The little fellows, notably the Reos, are holding up convincingly well. They stood the mountain tramping well and the law will not allow a fast enough pace to prevent their maintaining the time schedule.

The Quaker City Motor Club met the caravan at Trappe and escorted it into town. Tonight it is giving the tourists a vaudeville smoker at Horticultural hall. The Philadelphia Press was also in hospitable evidence at Trappe with a luncheon for every car.

The run today was through beautiful, rolling farm lands. That we were in the land of William Penn was evidenced by demure old women and modest young girls in white lace caps and soft gray or brown Quaker garb waving from the porches. The toll gates were at short intervals. They were picturesque with their grape and flower arbors. In the region of Lancaster not a few long-haired Mennonites were encountered and around Reading the Pennsylvania Dutch greeted the tourists with a wee bit lowering of their characteristic stolidity. The caravan came into town by way of the beautiful chestnut hill suburbs and rode down Broad street through the row to the night's stopping place at the Walton. Tom Fetch, Ralph Estep and the free lance Packard made a detour at Collegestown to visit Washing-

GLIDDEN TOUR SPEED SCHEDULE

Thursday, July 9, Buffalo to Cambridge Springs; 117.4 miles; running time allowed, 5 hrs. 52 min.

Glidden	Time	Miles per hour
Class A	5:52	20.5
Class B	6:02	19.4
Class C	6:12	18.9
Class D	6:22	18.4
Hower Trophy		
Class A	5:52	20.5
Class B	6:02	19.4

Friday, July 10, Cambridge Springs to Pittsburg; 122.5 miles; schedule, 5 hrs. 45 min.

Glidden	Time	Miles per hour
Class A	5:45	21.3
Class B	5:55	20.7
Class C	6:05	20.1
Class D	6:15	19.6
Hower Trophy		
Class A	5:45	21.3
Class B	5:55	20.7

Saturday, July 11, Pittsburg to Bedford Springs; 106.4 miles; schedule, 7 hrs.

Glidden	Time	Miles per hour
Class A	7:00	15.2
Class B	7:10	14.8
Class C	7:20	14.5
Class D	7:30	14.1
Hower Trophy		
Class A	7:00	15.2
Class B	7:10	14.8

Monday, July 13, Bedford Springs to Harrisburg; distance, 107.3 miles; schedule, 6 hrs.

Glidden	Time	Miles per hour
Class A	6:00	18.0
Class B	6:10	17.4
Class C	6:20	16.7
Class D	6:30	16.4
Hower Trophy		
Class A	6:00	18.0
Class B	6:10	17.4

Tuesday, July 14, Harrisburg to Philadelphia; distance, 133.5 miles; schedule, 7 hours.

Glidden	Time	Miles per hour
Class A	7:00	19.0
Class B	7:10	18.6
Class C	7:20	18.1
Class D	7:30	17.8
Hower Trophy		
Class A	7:00	19.0
Class B	7:10	18.6

Class A, cars over \$3,500; Class B, cars \$2,250 to \$3,500; Class C, cars \$1,500 to \$2,250; Class D, under \$1,500.

Hower Trophy
Class A, over \$1,500; Class B, under \$1,500.

ton's camp at Valley Forge, which the route makers had cut out just as they did Gettysburg, more's the pity.



SHERIDAN IN WHITE STEAMER MEETS THE TOURISTS NEAR JOHNSTOWN



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MOTOR AGE

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GIVE SMALL CARS A CHANCE



AFTER having followed the good and bad performances of the forty-six cars contending for the Glidden and Hower trophies and Glidden certificates during the first 3 days of the present tour over the hills and mountains from Buffalo to Bedford Springs, the importance of properly weighing the touring capabilities of the big and little cars by a committee drafting rules for such a contest as this becomes all the more apparent. In the majority of contests the speed schedule is made to best suit the big cars and after this is done provision is made for the small machines. It generally happens that pacemaking and road surveying is done in big cars with the result that not a single member of the controlling committee rides in small rigs and in this alone is found cause for the many comments heard as to the too fast pace for the light machines in the 1908 test.

The present rules regarding the speed schedule in the Hower trophy allow cars selling at under \$1,500 10 minutes longer than all selling over this figure if the day's schedule is under 7 hours, and 15 minutes if over 7 hours. This allowance is entirely inadequate. Two examples will suffice to show wherein its defects lie: In a run of 200 miles the big cars at 20 miles per hour are given 10 hours and little cars 15 minutes longer. A big car can travel up to 65 miles an hour on good stretches and has no trouble whatever on country roads in going 45 on the stretches, a speed which makes it easily possible to make up any time lost in tire repairs or other stops. On the other hand the little car has to exert itself to make 35 miles per hour and at this pace it takes a lot of running to make up the half hour lost in replacing a tire casing. If the course lies on a level road the little car is not so handicapped as when the route follows mountain passes and over roads provided with waterbreaks as regularly as with telegraph poles. A small car can more easily maintain its schedule on level roads than on rough roads, and when it comes to taking hills with waterbreaks it is considerably handicapped because of its shorter wheelbase.

It has been a matter of general observation so far on the Glidden that on the Buffalo-Cambridge Springs run over the excellent macadam of New York state the small cars had easy going; on the second day's run over the continuous hills and sand roads of Pennsylvania from

Cambridge Springs to Pittsburg the big cars beat their schedule over an hour, whereas the little ones had to travel very fast to maintain theirs; on the third day's run, Pittsburg to Bedford Springs, over the mountains, not a few of the big cars were more than an hour ahead, whereas the little ones had to keep continuously at it to have a necessary 20-minute leeway in case of tire trouble. While 15 minutes is sufficient difference between big and little car schedules for a 100-mile trip over good roads, it is not in anywise sufficient for the same trip over continuous hills and far from enough for a trip of that length over mountain roads filled with waterbreaks. This is well indicated by the troubles some of the little cars have had, while a few of them have kept up to schedule and are still in excellent condition. The condition is such as to warrant radical changes before the conducting of another Glidden tour.

THE LINCOLN WAY

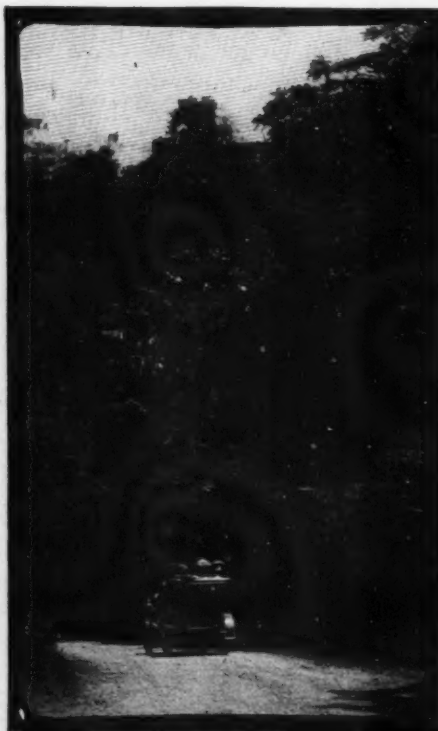


ONE of the addresses at the recent good roads convention in Buffalo that attracted more than ordinary interest was that on the Lincoln Way, delivered by President Caverley, of the Washington Automobile Club, in which he dilated on the scheme to construct a model roadway from Washington, D. C., to

Gettysburg, a distance of 77 miles, in commemoration of the works of President Abraham Lincoln, the designed roadway to be to America what the Appian Way was to Rome and is to Italy. The roadway as already planned by the war department is to be 150 feet wide and straight from Washington to a point 60 miles out where a turn west of 2 degrees is made, after which the road will run straight to Gettysburg. Plans further include the planting of a row of Normandy poplars on either side of the road, and the establishment of tea houses and other refreshment stops along the way.

A project of this nature indicates a more than ordinary desire for a useful method of commemorating the works and valor of America's great president; a method that suitably combines the utilitarian with the patriotic, for who will not admit that a memorial of this nature would not be more world-famed than one in the form of a marble or granite shaft erected in the public square of the capital city. For years the monumental architects of the country have been busily engaged in the designing of pillars, shafts and monuments intended for the commemoration of the deeds and words of great men so that now these are becoming fairly populous in the parks and squares of many of our great cities; but it remained for J. T. McCleary, second assistant postmaster general, to conceive the road-building scheme of a Lincoln memorial. Mr. McCleary, being one of a committee appointed by congress on the work of a Lincoln memorial, traveled over Europe in search of monument designs and other methods adopted for keeping the memory of great men before the present. After months of continued searching he decided that to this day the Appian Way, built 2,300 years ago in the golden days of Rome, still remains as the greatest monument in all Europe if not in the entire world.

The value of a memorial of this nature in America would be manifold, foremost of which would be the measure of respect it would convey to present and future generations of the works of Lincoln; and, second, it would serve to remind the entire country of Lincoln, existing as it would as an example of the highest art of road building and rural and interstate architecture. From a patriotic standpoint it would, in these days of motoring, bring the national capital into the realm of passable roads and also bring Gettysburg, that premier historic center, within reach of thousands and hundreds of thousands who are not familiar with its beauty.



PLEASANT TOURING CONDITIONS

MOTORING FARMERS IN SHORT GRASS REGION



MOTORING SCENE IN SOUTHWEST—FARMERS DRIVE TO TOWN IN THEIR MOTOR CARS

IT IS surprising to the person not familiar with conditions in the southwest when he sees the large number of motor cars in use by farmers and business men in the smaller cities in that section. A photograph, published on this page, shows a Saturday afternoon scene in Garden City, Kas., the market place for a region which was given up as perpetual desert by the early settlers of Kansas. Not many people in the east or even the middle west for that matter know where Garden City is or ever have heard of it. But now the sugar beet industry, centering about the town, has made it one of the most prosperous in the state. Naturally this prosperity brings the residents of the town abreast of the times and just as naturally that means motor cars, as is proven by the photograph. One look at these cars, almost all of which are owned by beet growers, tells what the farmers think of the modern method of transportation. This is not an isolated condition. Nearly

every town in Kansas can make a showing that would rival this. Garden City is the capital of what is popularly known as the short grass region and no one is more proud of its motoring population than the farmers themselves, who delight not only in the sporting side of motoring but in the utility of the vehicle as well.

It has been generally supposed that the only interest the farmers and motorists have in common is good roads, but modern times is disproving this. Motoring no longer is confined to the city folk, but the term motorist covers the ruralites as well. The farmers are buying motor cars themselves and in doing so they are rapidly dissipating that antagonistic feeling that formerly prevailed between the two classes. In a few years there will be hardly any horses to become scared upon meeting a motor car upon the road, for the reason that old Dobbin will be relegated to some back pasture and the farmer himself will be whizzing along in a car

on the fine roads which he has helped build because he has realized that improved highways benefit him far more than they do the city folk. He will be a motorist and when he has reached that class, then and not until then will the good roads movement become of national importance, it is believed.

Chicago furnished an instance of the growing popularity of the motor car among the farmers only last week when thirty-five ruralites from the vicinity of Kankakee, Ill., went to the big metropolis, looked over the cars on the row, then put in an order for thirty-five cars of the same make. That step made thirty-five converts not only for the cause of good roads but also for sane legislation. That means much for motoring, for the voice of the farmer is the strongest of all classes when it comes to getting help from the lawmakers. Your average solon knows on which side his bread is buttered, and he caters to the farmer class.

FRANCE MOURNS OVER DEFEAT IN GRAND PRIX



LAUTENSCHLAGER IN A MERCEDES DASHES HOME A WINNER

By A. G. BATCHELDER

DIEPPE, July 7—France tonight isn't exactly sure that motor racing pays. "Made in Germany" is a label that does not find extraordinary favor in the land of the fleur de lis. To have had one Lautenschlager the winner of the grand prix were sorrowful enough, but to have had his Mercedes chased by two Benz racers and the nearest French contender a fourth added to gloom still further intensified by the subsequent arrival of three more Germans. Think of it! Six cars out of the first ten bearing the hated label and that tenth one from Belgium! No wonder the departures from the grandstand began before the elated Lautenschlager had completed his tenth round. Yes, he received some cheers—there were a goodly number of Germans present—but the enthusiasm of the multitude evoked that same quality of joy which may be expected when the home baseball team loses out in the ninth inning of a hard game.

Mercedes presumably had been placed on the shelf by the French makers, and as for Benz, that car had been heard of in the early days of motoring. Opel was a name unknown. And to have these intruders survive the ordeal in superb manner, and only a single French car intermingled with them, was cause for lamentations prolonged and undisguised. Last year it wasn't quite so bad to have Nazaro of Italy win with French runners close up, though that blow gave the racing advocates a jolt that benumbed them for a time and which they still feel.

The Gordon Bennett, with all countries participating having five cars each, didn't give France as much chance for victory as she thought her motoring importance entitled her to, and so that event had to give way to the grand prix, wherein every maker can have three cars each. For like reason the Vanderbilt, being similar to the Bennett, received the kibosh from the French club and its European satellites. But this grand prix is not working out as satisfactorily as anticipated. France with

a preponderance of the entry list has met defeat twice in 3 years, and the one today is a crusher. Motor sport is most uncertain—and, alas! it is grounded in commercialism. No longer do the multimillionaires pay the bills and drive the cars. Now 'tis the maker who pays the freight—with rare exceptions—and the expenses are heavy when three entries become advisable once the plunge is made. France is the only European country which now conducts a real big race, and to hold it with the inevitable risk of losing prestige is chilling the ardor even of those who think racing a good advertisement for the industry.

But there is also sorrow of a different sort tonight, and the startling death of Cissac and his mechanic has called attention to the great risks now associated with high speed contests. Tires can only stand so much, and the Dieppe circuit has been unusually severe this time on the wind-shod shoes of the hard-driven motors. Stretches of road these were which hacked tires as though the rubber was pulp, and it became the usual thing to have car after car limp to the replenishment depots in front of the grandstand and take on fresh supplies.

As was demonstrated in the practice

work, the limiting of the piston area so a four-cylinder had 155 mm. and a six-cylinder 127 mm. per cylinder did not prevent an increase in the speed. Last year fuel consumption—30 litres for 100 kilometers—was the basis of limitation. Nazaro then accomplished an average of 70.61 miles per hour.

For a single round today Salzer in a Mercedes averaged 78.5 miles, and if the tire troubles had not multiplied, the winner's average of 69.5 for the entire distance would have been miles ahead of a year ago. Another factor which interfered with the speed was the inadequate tarring of the course, which in some places reeked with dust that penetrated the goggles of the drivers and made them suffer intensely and use no small amount of caution. The voiturette race of the first day did not improve the course, which, however, did not impress me any too favorably during a Sunday journey over it. Excellent stretches there were, but one also encountered rough spots and more dust than I have ever seen on any Vanderbilt course. It is only fair to say that thousands of cars visited the triangle on the days preceding the races and unquestionably were greatly responsible for its disappointing condition.

But there is a widespread feeling tonight evident that high speed racing has reached its climax. France can hardly quit now with two successive defeats chalked up against her, and this means that there must be a 1909 race at least. After that—well, one can't state positively. Charles Jarrott even ventures to say that it is now ended, but the English have not been keen on the road racing proposition since the Gordon Bennett in Ireland. Marquis de Dion asks: "What's the use of it? It does not prove anything except that it is easy to endanger life." The marquis, however, has been opposed to racing for some time, though it is to be noted that he no longer stands practically alone in his attitude.

There were forty-eight starters, twenty-



LAUTENSCHLAGER, THE WINNER

three of them being French, and twenty-five supplied by other nations. There were twenty-three finishers, only ten of which were furnished by the home country. Germany put in nine cars and finished with seven. Italy had six starters and two finishers; Belgium had three starters and two finishers; England had six starters and two finishers. Mercedes, after several years of nonsuccess in international racing, secured its old position again by reason of the fastest time on the whole distance, and by the fastest round covered much quicker than was ever done by the 1907 cars. Team performance also goes to Germany, Benz having won hands down with second, third, and seventh place. No other team finished complete.

After the complete routing of the French, the most distinguishing feature of the 1908 grand prix was the manner in which the best teams and best drivers were put out of the race. It was more than surprise; it was consternation in the Italian camp and their followers when Lancia, Nazzaro, and Wagner successively retired with serious mechanical troubles. Dietrich cast a shadow of gloom over the French by the failure of a single one of its drivers to travel more than two or three laps. Brasier, who has been synonymous with regularity, belied his reputation by failing to bring a car to the finishing line. Thery, the magic Thery, whose mere presence on a car was fondly supposed to be sufficient to make it a winner, showed that even he could be the victim of breakdowns.

The Renault downfall was more the result of accident than otherwise, Szisz being put out of the race by a cause that was altogether beyond his control, and Caillois losing valuable time either by defective mountings of his tires or by the defective nature of the fastenings. The Bayard-Clement cars, also regarded as the starting line as invincible, were probably victims of their own excessive speed.

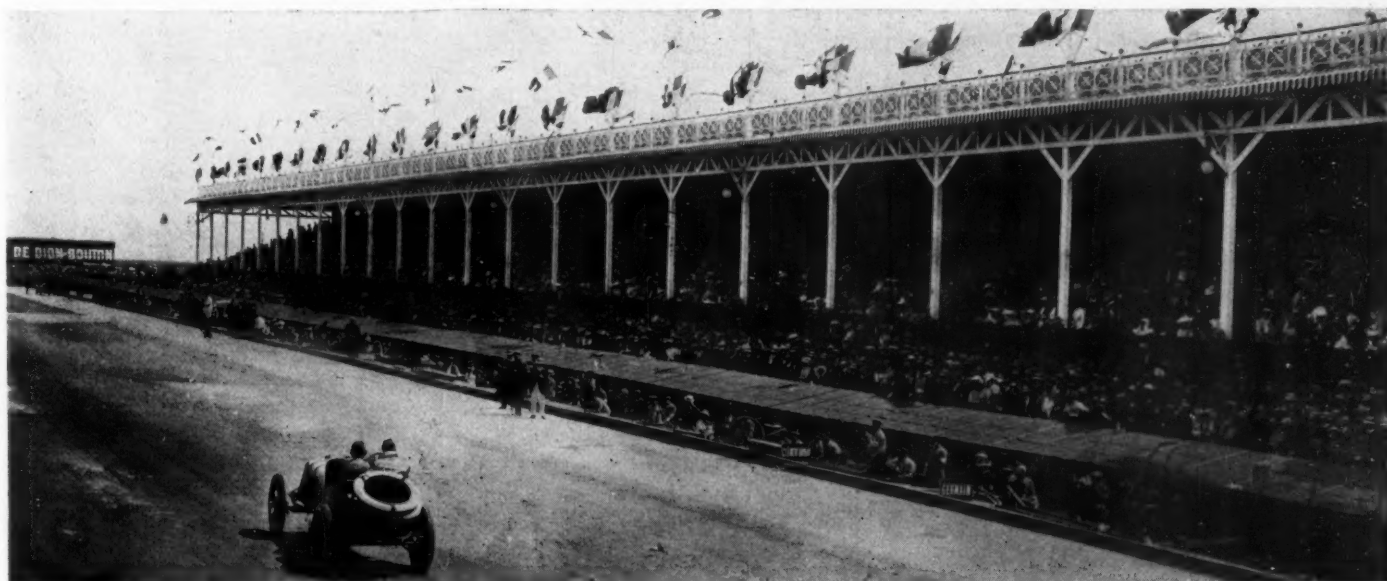
America sought experience and did not hope a single instant for victory. The Thomas entry was known to be nothing more or less than a partially remodeled stock car, of less power than any other racer engaged, and participating for the purpose of gaining experience for future use and incidentally to demonstrate reliability. Harry Houpst had a hard task cut out for him from the moment he landed in Dieppe and took charge of the Thomas interests. He labored indefatigably to overcome hurried preparation and the usual handicaps following in the train of doing things in a country where the American way is at times impossible and impracticable. And the Thomas started in its turn, persistently pursued its progress for four rounds, after suffering from tire difficulties in profusion. Then a leaky gasoline tank on the fifth round brought Strang's ride to its conclusion. Many others had fallen by the wayside in the meantime—some of them possessing international reputations.

One cannot resist asking, however, as to whether it is worth while for the American maker to seek international racing glory in Europe. There will be no market of much account for American cars in Europe for years to come—if ever—and unless an American can "cash in" a European victory, what is the good of seeking a useless asset? Furthermore, the work of preparation must be thorough and planned not less than a year in advance.

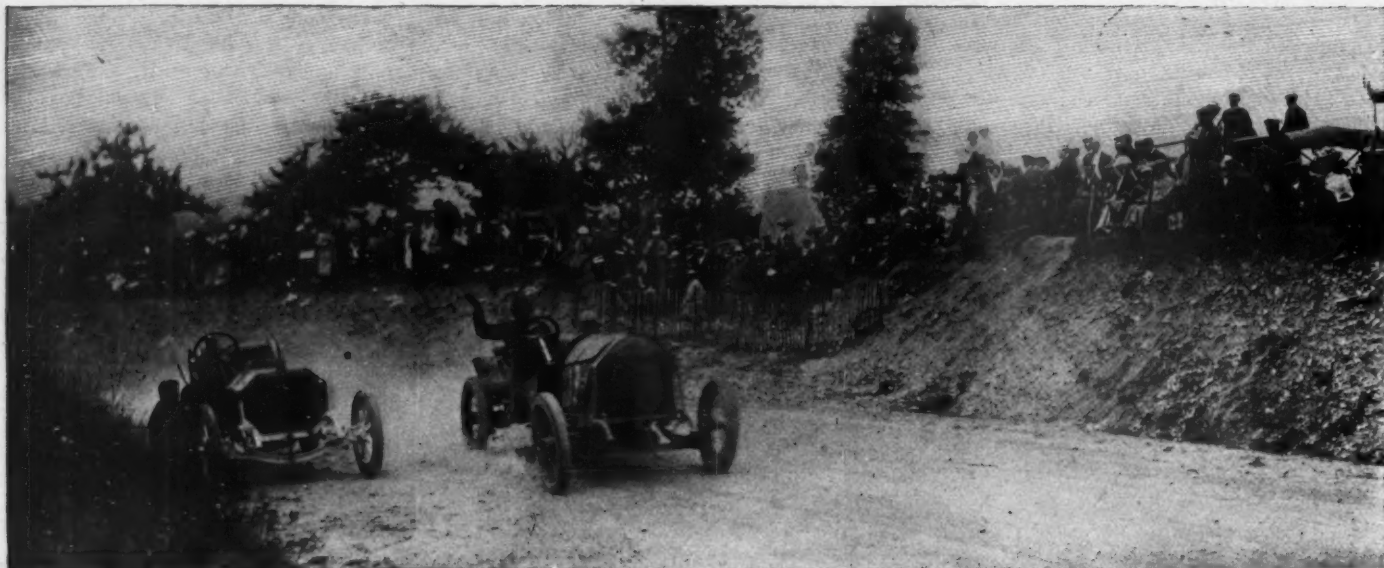
And it might be said right here that several European makers who have been much in evidence heretofore in American racing are doing some careful calculation as to whether it is worth while. Since they race their cars for advertising purposes, they are inclined to compete in the most important event, which, of course, means the Vanderbilt cup. If through some hocus-pocus or other, this is impossible, they are not charmed with the idea of going any distance from New York

city, even to accommodate a club which has been over friendly to foreign makers generally and only as recently as last winter had the French ambassador as the guest of honor at its annual dinner. But the present administration of the Automobile Club of America prizes highly its "foreign relations," to "protect" which Dave Hennen Morris, formerly president—and a good one, too—came over for the grand prix and a session of the "recognized clubs," in the running of which figures dictatorially Rene de Knyff, managing director of a French motor car company and chairman of the racing board of the French club. Of course, the "clubs" will stick by the A. C. A. through thick and thin, and thereby hangs a tale which will be set forth in these columns in due course of time. Self preservation is said to be the first law of nature—and also of motor clubs. But 'tis good guessing that until America has a real voice and vote in the international proposition, there will be no acceptance by American makers of international racing conditions. If the foreign makers do not fancy our rules, then they can stay away—or compete in a special event arranged for them by their particular friend, the Automobile Club of "foreign relations" fame. But, alas! Now they are not sure at all that it is remunerative to race cars in America, for the American market is not what it once was for foreign cars.

W. K. Vanderbilt, Jr., was among those who saw the race, and incidentally he made clear to those who cared to know that it is the A. A. A. and not the A. C. A. which promotes the Vanderbilt cup race and controls racing in America. Robert Graves, who has a Mercedes entry in the Vanderbilt and may have an American candidate also, was another in evidence, who made known the American situation, which only now is being understood for the first time. John S. Worden, who drove in the 1905 Vanderbilt, was to be seen.



GENERAL VIEW OF GRAND STAND, SHOWING THE BIG GRAND PRIX CROWD



AFTER HAVING DONE COMPARATIVELY WELL, THOMAS IS STRANDED BECAUSE OF LEAKING FUEL TANK

He now lives at Nice. James Butler, owner of the Empire City track, enjoyed the sport immensely, and regretted that the "Stars and Stripes" didn't have more speed. Cortlandt Field Bishop, president of the Aero Club of America; J. C. McCoy, also of aeronautical fame; J. Harvey Lan-

ning, of the Wilkes-Barre Automobile Club; Hart O. Berg, now foreign manager of the Wright brothers, and A. E. Lumsden, London manager of the B. F. Goodrich company, were among the comparatively small American contingent in Dieppe at the time of the race.

and German "Dangerous to lean out."

A second after the Benz car driven by Erle had been sent away the first car to finish the round roared past the grand stand at a speed of about 70 miles an hour. It was Poegge in the Mercedes, who had succeeded in passing the Englishman Resta sent away 1 minute ahead of him. Before No. 49 Germain, driven by Perpere, had closed the starts, Szisz, Hemery, Lancia, Duray and Thery had finished their first round, the excitement as the last car left and the leading cars finished their initial trip being intense.

Thery in the Brasier and Szisz in the Renault each covered the first round in 37:06, which is at the rate of slightly over 77 miles an hour. Thus last year's record round made by Nazzaro in 38:16, or at the rate of 75 miles an hour, was beaten before the struggle had been in progress an hour. But even better time was to be made, for when Salzer roared past the grand stands in his Mercedes he had performed the stupendous feat of covering the 47.8 miles of road, with a standing start, in 36:31, which works out at the rate of 78.5 miles an hour. The limited bore cars had already proved themselves faster than their unfettered predecessors of 1907 and 1906.

Wagner, who had started fortieth on the list, beat his team mate Lancia and his rival Thery by covering the first round in 37:13. Bablot of the Brasier car, made second fastest time on the initial round by putting up figures of 36:40. The one other to break Nazzaro's lap record of last year was Hemery in a Benz, with 37:55 to his credit.

Lancia's brilliant work was only of short duration. After passing the tape at the end of his initial round the bulky Italian pulled in his car at the appointed tire station, jumped off hurriedly and lifted the bonnet. There was a quick examination, a shrug of the shoulders, then 10 minutes leisurely work terminated

STORY OF THE RUNNING OF THE RACE

By W. F. BRADLEY

Dieppe, July 7—At 6 o'clock promptly, the boom of a cannon announced the approaching start of the race. One minute later and Darius Resta, England's race track champion, had shot over the line in the long green Austin, the leader in what everybody was convinced would be the most keenly disputed motor race Europe had ever seen. One minute later, Poegge and his Mercedes had evoked the cheers of the strong German element and was racing down the road after the Britisher. Pierron and the Motobloc passed almost unnoticed. Then five of the best drivers Europe can boast stood in line in this order: Szisz, Duray, Hemery, Lancia, and Thery. Szisz and his low-built, fine-looking Renault, commanded a hearty cheer; Duray was not lacking in favoritism, but Hemery was treated to cold silence; Lancia, the unlucky, still showed he was popular with race crowds, but it remained to Thery, returned to the racing game and the Brasier team after an absence of 2 years, to receive the most prolonged and hearty roar of the morning.

Stricker, the Yankee driver of a six-cylinder Porthos, was followed by Opel, the German, in his own machine. Behind was little Rigal in the big blue Bayard-Clement, one of the fastest cars in the race, according to preliminary tests. Next followed Cagno in Itala, Harrison in Weigel, and Jenatzy in a Mors.

Then came the turn of No. 15 Thomas, with Strang at the wheel. Though the first and second gears had locked on the

shaft while driving up to the starting line, Strang went away in excellent style, and was certainly a long way from being the slowest starter among a group of very fast cars.

Thirty-three other cars followed, every start being made with a dash and vim that revealed a determination to conquer in a hard, long struggle. Instead of the forty-nine cars originally entered, the actual starters were forty-eight, the third Mors, originally intended for Charles Jarrott, but later turned over to a factory mechanic, being absent on account of a break-up while on a previous practice spin. The three English Weigels, too, had at one time been doubtful starters, an accident 2 days before which cost the life of one of their friends, an amateur, driving the 1907 Renault of Szisz, completely disorganizing the team. The final settlement was that Weigel, the owner and builder of the three cars, withdrew from the race and was replaced by a factory tester.

The number of cars being large and the road reported rather loose and dusty in places, special protection had been taken by most of the drivers. A large proportion had their faces painted, and complete masks with but an opening for the mouth and eyes were used by many. Duray had a light wire gauze screen fitted up from the right hand side of his dashboard as a preventative against flying stones. His breast was as usual adorned with Lorraine-Dietrich charms, and on the right hand side of the chassis was a notice in English

by the car being pushed off the track into the paddock at the rear of the grand stands. Lancia's opportunity of winning the grand prix had been lost through the breaking of the water pump shaft.

Jenatzy ran in on completing his round in order to change the tires, in the manufacture of which he is interested. The work was done while the engine was running, a quantity of oil taken in, and the Mors car was off again.

Nazzaro had secured first place by the time the second round was completed, and was followed at an interval of exactly 1 minute by Lautenschlager, the newcomer on the Mercedes racing team. They had third place, Wagner fourth, Duray fifth, and Minoia, the de Dietrich driver, sixth. There was surprise that Szisz, who had tied with They for third place on the initial round, should not come around in his expected place. The absence was soon explained, for the Renault came slowly up the road minus its left rear tire and rim.

In a few hurried words the situation was explained: On approaching the hair-pin turn near the Dieppe end of the course, and less than a mile from the grand stand, Szisz was suddenly flagged to stop, Poegge's Mercedes having missed the turn and gone into the fence. Under the influence of the harsh application of the brakes, tire and rim flew off the wheel, the car meanwhile continuing to run along on the fixed wheel for a distance of several hundred yards. When the racer was finally pulled up it was found that the two flanges had been so flattened that it was impossible to fix a new rim. The car was running up to the grand stand on the rim, pulled up in front of its tire station, examined by Louis Renault and Chairman Rene de Knyff, then ordered to be pushed off the course, the regulations forbidding the changing of a wheel and a continuation of the race being impossible under any other conditions.

There were more surprises and disappointments in store, for the entire Dietrich team of Duray, Rougier, and Minoia, was soon put out of the running in quick succession. Duray, after covering two rounds, got back to the stand on foot and made the statement that the clutch collar had seized up. Rougier's failure was put down to magneto trouble; for Minoia no explanation could be offered by the officials. Salzer, the acrobatic Mercedes driver, who furnished the record round, completed a second trip around the triangle, then disappeared. Gaubert, one of the Porthos drivers, was unable to get around one of the bends with his long wheelbase car in a satisfactory manner, ran into a wall, smashed his wheel and retired. Simons, his team mate on the No. 42 Porthos, met with a similar fate during the second round. Shannon of the Weigel team and Piacenza of the Itala each failed to report after a single round had been made.

It was early seen that the struggle was going to be a severe one between the Benz, Mercedes, and Brasier teams, with Bayard-Clement and Renault as runners-up. On the third round Wagner, the Fiat driver, had got first place, followed by Hemery, Benz; Lautenschlager, Mercedes; Nazzaro, Fiat, and They, Brasier. It was indeed a star aggregation.

The proud position was not maintained for long, Wagner retiring on his fourth round owing to the breaking of a crankshaft of the Fiat racer. On the same round and at about the same time Nazzaro was reported as having quit the race, the trouble according to his team mate Wagner, being also a broken crankshaft. Thus all three Fiat cars were out of the race when only a third of the distance had been covered.

On the fourth round also Baras, the second Brasier driver, went out of the race as the result of the cams becoming loose on their keyways, the cams and shaft on the Brasier racers not being in-

tegral as on the touring car, in order to allow finer adjustment and changes. Laxen, the driver of No. 30 Weigel, skidded on a turn very early in the race and was unable thereafter to use any other than his third and fourth speeds. Later, while taking a turn at Eu during his third lap his car turned completely over without, however, any serious injury to the two men.

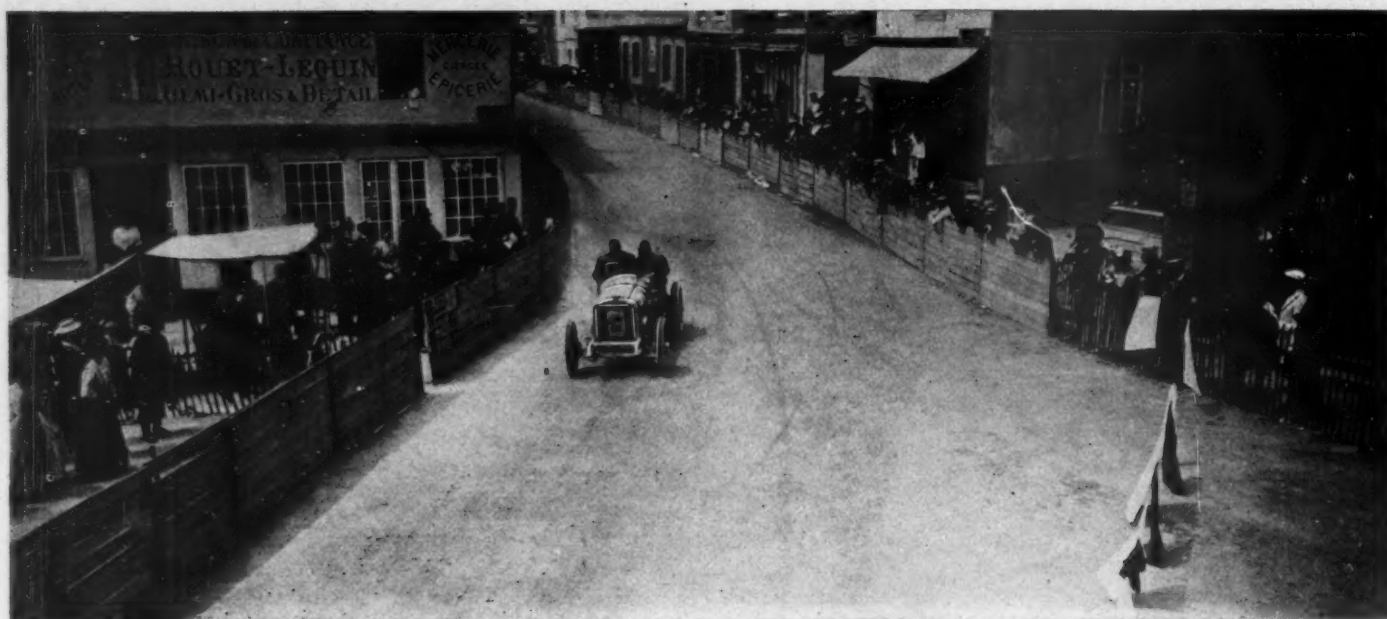
On the completion of the fourth round Hemery, the French driver of the German Benz, was in first position, with a lead of 2 minutes on Lautenschlager, the Mercedes conductor. Hanriot, also in a Benz, was third, with They running a very close fourth. Heath, who was driving his Panhard with remarkable dash, was in fifth place, Bablot in the Brasier in sixth, Cissac in the Panhard seventh and Hautvast, of the Bayard-Clement team eighth.

Owing partly to the forcing of the pace, and in a certain measure to the fact that the road was exceptionally hard, tire trouble was abundant. At the end of the first, second and fourth rounds Strang put into his station to change a punctured tire and take on replacements for those lost on the course. Guichard, the mechanic of the Thomas car, showed remarkable ability by climbing out to the bracket behind the gasoline tank and unstrapping the tires as the car was running down to the station. With the single fastener Michelin rim and prompt responses from those at the tire and gasoline station the changes were all made with remarkable speed.

Tire changing being an important factor in the race, it was interesting to notice the various arrangements adopted and methods of work of the different teams installed in the dug out "ravitaillement." Renault and Panhard both had pneumatic jacks which could be put under the axle of the car and the vehicle raised in less time than it often took to place the old type in position. Dietrich had a long double lever about 7 feet in length by which the entire front or rear could be lifted



GUYOT IN A DELAGE, WINNER OF THE VOITURETTE RACE THE FIRST DAY



THERY IN A BRASIER PASSING THROUGH ENVERMEU

off the ground on one pull. Half a dozen firms maintained their gasoline under pressure in a large tank, the lead to the car being made by a long length of piping.

During the fifth round Lautenschlager in the Mercedes managed to wrest first place from Hemery in the Benz and to secure for himself a margin of 3 minutes. Hemery took second place, his companion, Hanriot, retained third and Thery kept in fourth position. There was now something like consternation in the French camp, for unless Thery could wear down the three fast cars in front of him victory was assured to Germany, and, in any case, the home industry would be poorly represented in the first half dozen. Heath and Cissac, each in a Panhard, were running well, but could not be expected to secure first place except by accident, and the two Renaults handled by Caillois and Dimitri were too far down at half distance to hope to get to the front.

On the termination of the sixth round the Mercedes-Benz duel was still in progress, Lautenschlager leading by 4 minutes on Hemery and 5 minutes on Hanriot, Benz. Thery, in fourth position, handled his car magnificently.

While the leaders were on their sixth round Strang pulled into the station at the end of his fourth round with the gasoline tank leaking badly. It was quickly filled, fresh tires taken, and a start made for a fifth round, Strang believing that he could run on gravity with his large supply and keep sufficient fuel to get round the course. In other respects the car had shown satisfaction, and, though not as fast as the Germans and French, seemed capable of going the entire distance.

Hemery managed to close up on Lautenschlager during the seventh round until the difference between the two men was barely a minute. Hanriot was 4 minutes

behind the leading Mercedes, and Thery was 10 minutes in the rear. During this round Hemery was struck in the eye by a flying stone which broke his goggles and caused some of the glass to enter the eye. Though suffering intensely and only seeing with one eye, the Frenchman stubbornly refused to allow his car to be taken over by a reserve driver. One side of his head was horribly swollen, the effect of the tarred surface and dust aggravated the evil, but still the killing pace was maintained. Lautenschlager managed to draw away from Hemery 1 minute and from Thery 4 minutes, but the respective positions of the four leaders remained unchanged during the eighth round.

Hemery finished first with his left rear tire flat and his left eye probably useless for the rest of his life. But he had started earlier than Lautenschlager carrying No. 35, and had to be content with second

place, 9 minutes behind the Mercedes. Hanriot, who had struggled hard to wrest second place from his team mate, finally had to accept third position, less than 1 minute behind the second.

At the commencement of the last round fourth place had seemed certain for Thery; it was even imagined by his supporters that a supreme effort would be made to run up to third or second position, first place being manifestly beyond his reach except in case of accident. Henry Brasier wandered up and down the track with a worried look on his face and glancing every few minutes at the announcement board for news of the passage of his crack driver. Louis Renault strode up and down nervously and anxiously, stopping now and again to explain to Rene de Knyff how Caillois had been delayed by trouble with his dismountable rims. The minutes passed, but no reports came in of the approach of

FINAL POSITIONS OF CARS FINISHING IN THE GRAND PRIX

Car	Driver	Time
1—Mercedes, Germany.....	Lautenschlager	6:55:43 3-5
2—Benz, Germany.....	Hemery	7:04:24
3—Benz, Germany.....	Hanriot	7:05:13
4—Bayard Clement, France.....	Rigal	7:30:36 3-5
5—Mercedes, Germany.....	Poegge	7:32:31
6—Opel, Germany.....	Joerns	7:39:40
7—Benz, Germany.....	Erle	7:43:21
8—Renault, France.....	Dimitriyitch	7:54:12
9—Panhard & Levassor, France.....	Heath	7:55:36
10—Germain, Belgium.....	Perpere	7:59:07 2-5
11—Itala, Italy.....	Gagno	8:07:56
12—Bayard-Clement, France.....	Gabriel	8:11:44 1-5
13—Motobloc, France.....	Courtade	8:12:43
14—Motobloc, France.....	Garceet	8:19:56 2-5
15—Renault, France.....	Gaillois	8:19:56 2-5
16—Mors, France.....	Janatzy	8:24:44 4-5
17—Mors, France.....	Landon	8:39:20 2-5
18—Austin, England.....	Brabazon	8:42:50
19—Austin, England.....	Resta	8:46:50
20—Itala, Italy.....	Fournier	8:47:20 2-5
21—Opel, Germany.....	Opel	9:08:11 3-5
22—Germain, Belgium.....	Degrais	9:13:34
23—Panhard, France.....	Farman	9:24:40

Winner's average, 69.5 miles an hour
Last year's average was 70.61 miles per hour
Winning car equipped with Michelin tires, and magneto

Thery. The time necessary to secure first place elapsed, then the cruel truth burst upon them that Thery, long looked upon as superior to breakdowns and accidents, had met with defeat. It was not, however, until an hour later that it was learned that the Brasier car had completely broken down during the last round, a cylinder having cracked and the big racer finished its career in the ditch.

Rigal, who earlier had been delayed by trouble with his dismountable rims, made a supreme effort and finally brought his Bayard-Clement into the fourth place vacated by Thery. Poegge, who had undone the first Renault, brought his Mercedes into fifth place; Joerns in the Opel secured sixth place, Erle in the Benz took seventh position and Dimitri, the Renault driver, was classed eighth.

Though George Heath was unable to officially finish the race, his car took ninth position. The winner of the first Vanderbilt race had suffered severely from the effects of the tar on his eyes all through the race. At the end of the ninth round he declared that it was impossible for

him to continue and immediately Artois, who was in the gasoline station, jumped onto the road and was off with the car. During the final round the mechanic was thrown out of the car on one of the turns, the rear wheel passing over his left hand and severely crushing it.

Henry Fournier, one of the several veterans who have returned to racing this year after a long absence, was delayed by tire and slight mechanical trouble early in the race, and later suffered intensely from the action of the tar on his eyes. On completing the course in twentieth position he had to be led away to the doctor, his eyesight having temporarily left him. Moore, Brabazon and Resta, the English drivers, were similarly in a pitiful condition, while George Heath had to take to his bed for a day or so.

The spot where Cissac and Schaube were killed was at Sept Meules, the road slightly descending and perfectly straight. A soldier declares that a tire burst, the machine swerved suddenly to one side and struck two trees, bounded to the opposite side of the road, then rolled over on itself two or

three times. According to the doctor's report Cissac was not driving the car at the time of the disaster, the wounds and positions of the two men showing that the mechanic, Schaube, was at the wheel.

Running of Voiturette Race

Dieppe, July 6—If there had been a little more internationalism in the event and no momentous grand prix to overshadow it, the voiturette race held today would have stood forth as an excellent sporting affair. Unfortunately all the starters with the exception of two teams were supplied by home firms. Still more unfortunately for the foreign visitor and the casual motorist not more than 10 per cent of the drivers had ever been heard of in a racing capacity before.

The winner of the first voiturette grand prix was found in M. Guyot, who was the first to shoot over the starting line in a Delage one-lunger, and was the first to finish the race. Six times in succession, without a stop of any kind whatever, the little single-cylinder car of less than 4 inches bore traveled around the triangle at an average speed of slightly more than 50 miles an hour. To be exact, his time for the 285.2 miles was 5:45:30½, which works out at the rate of 50.02 miles an hour. Two years ago the suggestion of such a speed would have been laughed at as an impossibility; today it was expected, and when it was obtained no surprise was shown.

Second place went to Naudin, one of the favorites, who finished in his Sizaire-Naudin single-cylinder car 7 minutes behind the winner. Third and fourth places went to Lion Peugeot, and fifth to Delage. All three Delage cars finished, and finished so well that they secured the regularity prize with 18 points. Lion Peugeot was second best on team performance with 22 points, Sizaire-Naudin coming third with 29 points. No other teams finished complete.

SUMMARY OF THE FINAL RESULTS IN VOITURETTE RACE

Car	Engine	Driver	Time
1—Delage	1 cylinder	De Dion	5:15:30 1-5
2—Sizaire-Naudin	1 cylinder	Guyot	5:52:06 3-5
3—Lion Peugeot	1 cylinder	Naudin	5:58:00 1-5
4—Lion Peugeot	1 cylinder	Goux	6:05:25
5—Delage	1 cylinder	Baillot	6:18:50
6—Thieulin	1 cylinder	Thomas	6:26:44
7—Alcyon	1 cylinder	Viton	6:32:37
8—Isotta Fraschini	4 cylinders	Barriaux	6:36:39
9—Sizaire-Naudin	1 cylinder	Mazerati	6:36:57
10—Martini	4 cylinders	Lebouc	6:37:28 1-5
11—Thieulin	1 cylinder	Beck	6:38:40 3-5
12—Delage	1 cylinder	Schwot	6:38:52
13—Werner	1 cylinder	Lucas	6:40:37
14—Isotta Fraschini	4 cylinders	Vallee	6:42:38
15—Lion Peugeot	1 cylinder	Buzlo	6:50:40
16—Roland-Pilain	4 cylinders	Giuppone	6:51:28
17—Guillemin-le-Gul	1 cylinder	Loulson	6:58:46
18—Sizaire-Naudin	1 cylinder	D'Avaray	6:58:48
19—Werner	1 cylinder	Sizaire	7:02:02
20—Gregoire	2 cylinders	Molin	7:17:03
Average, 50.02 miles an hour			



THE UNFORTUNATE CISSAC IN PANHARD MAKING HIS FATAL LAP

CADILLAC IS A WINNER IN ENGLISH TRIALS

LONDON, July 4—No ties resulted in either the Scottish trials or the Royal Automobile Club's 2,000-mile international test, which were run jointly, the former finishing before the latter, however. Of the two the R. A. C. event naturally was the more important, for it included 2,000 miles of running on the road in which were included 22 miles of hill-climbing, finishing up with a 200-mile speed test on the Brooklands track. This track test proved to be the spectacular side of the contest, it being a sort of a handicap affair whereby those cars which were most penalized in each class gave their more fortunate competitors handicaps according to the penalizations incurred. That is, a car which had been penalized 200 points had to give another car which was charged with only 50 points 50 minutes start in 200 miles. This naturally brought the result up to the final tape, for the car first home was the winner in its class. The Scottish trials which were completed some time ago resulted as follows:

Class A, chassis price not over \$1,000—Won by 10-12-horsepower Swift.

Class B, chassis price over \$1,000 up to \$1,250—Won by 12-14-horsepower Argyll.

Class C, chassis price \$1,250 up to \$1,625—Won by 16-horsepower Bell.

Class D, chassis price \$1,625 up to \$2,225—Won by 12-16-horsepower Vauxhall.

Class E, chassis price \$2,225 up to \$2,625—Won by 25-35-horsepower Darracq.

Class F, chassis price \$2,625 up to \$3,250—Won by 35-horsepower Deasy.

Class G, chassis price \$3,250 up to \$4,000—Won by 40-horsepower Armstrong.

The Scottish cup for the lowest fuel consumption per ton mile was awarded to the 24-horsepower Albion.

In the Royal Automobile Club's trial a 10-horsepower Cadillac was a winner in its class, but it was closely pushed by a 15-horsepower Zedel when it came to the track race. The results in the R. A. C. event were as follows:

Class A, 0 to 6.4 horsepower, two seats; minimum weight without passengers, 10½ cwt.—Won by 8-horsepower de Dion; fuel consumption, 29.1 miles per gallon; speed at Brooklands, 27.60 miles per hour.

Class B, 6.4 to 9.4 horsepower, not fewer than two seats; minimum weight without passengers, 12½ cwt.—Won by 8-horsepower Adler; fuel consumption, 26.7 miles per gallon; speed at Brooklands, 35.60 miles per hour.

Class C, 9.4 to 13 horsepower; not fewer than four seats; weight without passengers, 14½ cwt.—Won by 10-horsepower Cadillac; fuel consumption, 29.1 miles per gallon; speed at Brooklands, 31 miles per hour.

Class D, 13 to 16 horsepower; four seats; minimum weight without passengers, 16 cwt.—Won by 12-14-horsepower Singer; fuel consumption, 21 miles per gallon; speed at Brooklands, 31.20 miles per hour.

Class E, 16 to 20.8 horsepower; four seats; minimum weight without passengers, 20 cwt.—Won by 12-16-horsepower Vauxhall; fuel consumption, 26 miles per gallon; speed at Brooklands, 46.13 miles per hour.

Class F, 20.8 to 25.6 horsepower; four seats; minimum weight without passengers, 22½ cwt.—Won by 25-horsepower Talbot; fuel consumption, 26 miles per gallon; speed at Brooklands, 51.80 miles per hour.

Class G, 25.6 to 32.4 horsepower; four seats; minimum weight without passengers, 25 cwt.—Won by 30-horsepower Adler; fuel consumption, 18 miles per gallon; speed at Brooklands, 62.77 miles per hour.

Class H, 32.4 to 40 horsepower; four seats; minimum weight without passengers, 27½ cwt.—Won by 40-horsepower Armstrong; fuel consumption, 15.2 miles per gallon; speed at Brooklands, 55.74 miles per hour.

Class L, 40 to 46.4 horsepower; four seats; minimum weight without passengers, 30 cwt.—Won by 30-40-horsepower Ariel; fuel consumption,

14.8 miles per gallon; speed at Brooklands, 46.39 miles per hour.

Class K, 46.4 to 52.8 horsepower; four seats; minimum weight without passengers, 32½ cwt.—Won by 40-50-horsepower Rolls-Royce; fuel consumption, 20.2 miles per gallon; speed at Brooklands, 53.37 miles per hour.

Class L, 52.8 to 60 horsepower; four seats; minimum weight without passengers, 35 cwt.—Won by 40-50-horsepower Ariel; fuel consumption, 12.5 miles per gallon; speed at Brooklands, 50.69 miles per hour.

Of the forty-six cars started in the English test, thirty-six reached Brooklands and took part in the 200-mile speed test on that famous oval. This gives a percentage of .78 completing the test, which is regarded as being an exceedingly fine showing, considering the severity of the roads. It must be remembered that in the 2,000 miles of road work there was 22¼ miles of hill-climbing and the grades were the very worst to be found in Scotland. In scoring these hill tests the judges took the difference in time between any car and the fastest vehicle in its class as being equivalent to a delay. So well did the scheme work out that when the cars reached Brooklands, after completing 2,000 miles on the road, the relative positions were such that it seemed as if there was a chance for a contest only in one class. That was class C, in which were the Cadillac and the Zedel. However, the critics were surprised when the Brookland test resulted in changing the order in classes F, G and H, the leader in class G experiencing tire troubles and in H a broken universal joint was responsible for the upset.

The Cadillac had its work cut out for it. The distance for these two cars was reduced from 200 to 150 miles, and although it had 33 minutes 31½ seconds advantage of the Zedel at the start of the race, the latter car showed such speed that the Cadillac won by only 1 minute 14½ seconds, the Cadillac averaging approximately 31 miles an hour and the Zedel traveling 4 miles an hour faster.

The White steamer, the other American car, was in two classes. In G the 20-horsepower steamer was put out early in the road trial owing to trouble with the differential gear, which is ascribed to over-anxiety of the driver to get a good start in the Cairnwell hill-climb. In class H a 30-horsepower White steamer secured second place. It had made a fine showing in the 2,000 miles of road running and was averaging about 54 miles an hour on the track when it developed trouble inside of the axle casing. The White showed particularly well on the hills with one exception—that was at Cairnwell, when it was necessary to relight the burners. Not counting in the delay on the first hill, the White was only 7 minutes behind the Daimler on the whole 22 miles of time hills and it carried about 1,000 pounds more than any other car in its class. The White's mechanical trouble was caused by inattention to the jockey pulley for the chain which drives the

lubricator and fan spindle, the neglect of which resulted in the chain riding the sprocket teeth, thereby bending the fan-shaft, which had to be dismantled. The rest of the way the White went without a fan and on hand lubrication only. The White experienced considerable tire troubles throughout the test.

When it came to the track contest the de Dion and Adler had walkovers in their respective classes, but, as mentioned above, the Cadillac had its work cut out for it, although it had 33 minutes advantage at the start. The Singer had no opposition in class D, while in class E the Vauxhall had so much handicap it never was in danger.

TRACK RACING AT ST. PAUL

Minneapolis, Minn., July 15—Special telegram—The greatest motor race day, and the greatest turnout ever known in the northwest, combined at the races at Hamline track today, 12,000 persons filling the space nearest the finish line. The first race was No. 3 on the score card, a 5-mile run for stripped stock machines to cost \$1,250 or less. It proved to be a speedy race, developing a fast mile credited to the Buick, driven by Charles Nyquist, in 1:17½. Nyquist got away finely and never was headed, reaching the wire first on every mile as it was reeled off. His time was 6:05½ and he defeated Wheeler in a Ford, Reynolds in a Buick and Goerr in a Ford, in the order named. The great event of the day, the trials of the crack performers to lower the track mile record with flying start, which was placed by Walter Christie at :52, caused no end of excitement but no one smashed the record by 2¼ seconds, Christie again getting the best time. Christie was sent away first and made the mile in :54½. Barney Oldfield, driving a Stearns Greyhound, made a trial but could get no better than :56½. Ralph de Palma came on with his Peerless Green Dragon, but the best he could do was :58 flat. Event No. 5, for 40-horsepower chassis, distance 15 miles, was won by Ralph de Palma in an Allen Kingston in 5:14½. A. H. Patterson was second, driving a Packard, owned by Oliver Crosby. Event No. 4, for 60-horsepower chassis, was won by de Palma, in the Allen Kingston car in a 5-mile run. Time 4:56½. Charles Soules, in a Stearns owned by Barney Oldfield, was second; Bernin, driving a Renault, was third in this race.

AFTER ANOTHER DIVIDEND

Hartford, Conn., July 10—On Tuesday of this week Vice Chancellor Howell, of the court of Newark, signed an order which will make it possible for the receivers of the Pope Mfg. Co. to declare within a short time an additional dividend of 25 per cent on approved claims

of the company. The order, which was obtained by Sherrud Depue, counsel for the receivers, directs that Albert L. Pope, Egbert J. Tamlyn and George A. Yule apply to the superior court of Connecticut for the transfer to this jurisdiction of sufficient funds to pay such dividend to the creditors. The receivers are furthermore instructed to include in their application a sum sufficient to secure the payment of a like dividend upon the claim filed by Louis A. Unzicker and others of Chicago, in case of the ultimate allowance of their claim. It was represented in court that the claim, which is based on a factory property lease owned by the Unzickers in Chicago, and amounts to about \$500,000, was disallowed in New Jersey and also in the Connecticut jurisdiction. Mr. Corbin gave notice of an immediate appeal from the disallowance of the Unzicker claim by the New Jersey and Connecticut receivers. Vice Chancellor Howell also executed orders permitting the continuation of the Hartford and Westfield factories, 700 motor cars to be constructed at the Hartford plant and 50,000 bicycles at the Westfield plant for next season's business. This is taken as an indication that the Pope concern is rapidly getting on its feet.

BEER AS DUST-SETTLER

Brussels, June 30—There were a few Belgians among the passengers in the great German tour, otherwise known as the Prince Henry cup competition. A few days ago one of these tourists related some of his impressions. They may be found interesting even now that the tour is a matter of history. Said he: "There was nothing strenuous about the tour, which was baptized by many of us as a 'belle promenade en automobile'—which means literally a nice motor promenade. So at no time did we travel at anywhere near the speed capabilities of our cars. The speed trials and the hill-climbs were interesting and of course showed just what power the cars had; but as a whole it was not much of a test for up-to-date motor cars. From the point of view of ordinary touring it was the most successful, best organized and managed affair of this kind I think ever was pulled off in Europe. You were enabled to enjoy the country through which you drove and the route was laid out through the most wonderful sections of the great German vaterland. Of course there was one big nuisance in connection with the tour—the dust. Sometimes there was so much of it that you could distinguish what was in front of you by only 5 or 6 meters. I understand that one of the German passengers, because of the dust he swallowed during the first 2 days, bought a barrel of beer and, hiring a lad, made him sit in the rear of the car and throw out steins of beer on the path followed by the other cars. This novel experiment created considerable amusement."

AFTER BIG RACE PLUM

Chicago Automobile Club Would Handle the Thompson Stock Chassis Cup Event

Chicago, July 13—The Chicago Automobile Club is anxious to handle the Thompson stock chassis race for the American Automobile Association and last Friday Secretary Gorham of the local organization wired the parent body of the desire of the club. Having established its loyalty to the A. A. A. by refusing to join forces with the Automobile Club of America, the Chicago club now desires to become actively identified with the promotion of motoring events and naturally is going out for one of the three big plums the A. A. A. has at its disposal.

This application for the race was preceded by the investigation of an Indiana course by Chairman J. F. Gunther of the racing board of the club, which was made at the order of the directors who have been considering for some time the advisability of putting on a stock chassis race. When President Hotchkiss of the A. A. A. was in Chicago during the republican convention he talked to the directors and his conversation led them to believe the application of the club would receive favorable consideration if it could be backed up by a suitable course and the promise of the militia. These the club thinks it can get.

Chairman Gunther, while on his trip into Hoosierdom, interviewed the residents of Lowell, one of the towns on the course, and so enthused did they become over the prospects of getting such a race that they promised to circulate a petition among the farmers asking the governor of the state to furnish soldiers to guard the course. They also promised to interest the board of supervisors of the county, so the committee went away well pleased with the outlook.

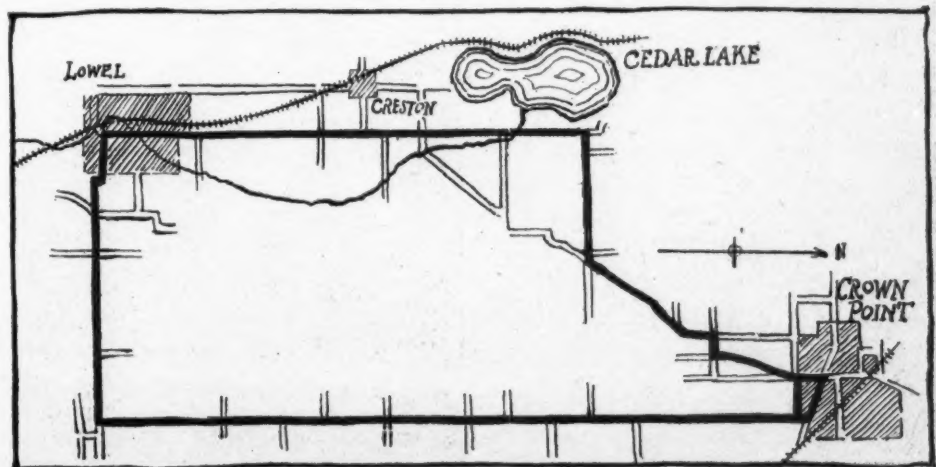
Crown Point is the only other town on the projected course and there Harold Wheeler, a non-resident member of the club, has succeeded in interesting his fellow townsmen so favorably that they are

willing to let the race go through the town without establishing a control there.

The circuit inspected is 22 miles in length and the remarkable part of it is that not a single railroad crosses it. There are only eleven turns in it and while some of them are sharp road-makers can work wonders with them by banking them a trifle. The straights are long and fast, while all the way around it is macadam with the exception of 3 miles which will be ready long before the race. This strip already has been graded and when it is done there will be a macadam ribbon 22 miles around an oblong circuit and 18 feet wide. Starting from Crown Point, there is about 2½ miles of winding road that takes one to Cedar Lake, then comes a 6-mile straightaway to Lowell, a little town of 1,800 inhabitants. It would be impossible to go through here at speed, so a control is planned. Leaving Lowell the road runs east for 3½ miles, there being a couple of turns in the stretch. Bracing away to the north at the end of this leg, there is a 10-mile stretch of rolling road as straight as an arrow.

WANT STATE HIGHWAY

Philadelphia, July 13—Stirred to action by the proposal of Pennsylvania's State Commissioner of Highways, J. W. Hunter, to connect the sixty-seven counties of the Commonwealth with state roads, the motorists of Wilkes-Barre and vicinity are agitating the building of a highway running across the state from north to south, following the general course of the Susquehanna river. "Binghamton to Baltimore!" is their slogan. Such a road would touch Montrose, Tunkhannock (with a spur to Scranton), Wilkes-Barre, Bloomsburg, Danville, Northumberland, Duncannon, Harrisburg and York, bisecting the proposed east-and-west trans-Pennsylvania road at the last-named place. Many stretches along the Binghamton-to-Baltimore route are already in first-class shape, and the amount of money required to rebuild the connecting links will be much less than one would expect when the length of the proposed highway, upwards of 225 miles, is considered.



INDIANA CIRCUIT PROPOSED FOR THOMPSON STOCK CHASSIS CUP RACE

OWNERS ENJOY OUTING

Mitchell Motor Car Co. Repeats Annual Reunion of Customers on the Pacific Coast

San Francisco, Cal., July 6—One of the most interesting events of a social kind in the west is the annual reunion of the owners of Mitchell cars. Every year the Mitchell Motor Car Co. issues an invitation, personally directed, to every owner of a Mitchell car in the state of California to be the guest of the company for a couple of days and to take his pleasure under the company's auspices. The response is very generous and each year the number of participants has grown until this year there were more than 100 cars participating. Secretary G. V. Rogers, of the Mitchell Motor Car Co., again came out from the east to give his personal attention to the proper entertainment of the Mitchell owners, and the latter certainly had it. The whole effect has been to form a strong bond of union between all Mitchell owners—an *esprit de corps* that is quite as effectual as in the case of any crack aggregation. There is a pride in their cars and in their friendship that must well repay the Mitchell Motor Car Co. for its trouble and pains, for the owners' loyalty extends strongly to the factory that so long remembers them.

On Friday, July 3, the hundred or so Mitchell machines gathered from the state over at San Jose, some 50 miles south of San Francisco. Every one of them had been provided with a Mitchell flag and an emblem denoting the city from which the owner came, different colors being chosen for different localities. After luncheon the annual hill-climb in Alum Rock park took place. There were contests for 1908 touring cars, for models of prior years, roadsters and runabouts of

1908 and of previous years, and one for women, the reward in the last named event being a handsome silver trophy given by N. H. Neustadter, of San Jose. For the first and second places prizes were given—everything from silver cups to chains and tires. The hill in itself is not a steep one, but it is long and provides a good, steady pull. Yet some very good work was done, a feature of it being the remarkable showing made by the several women who drove. The silver trophy for the winner in the 1908 touring car class, the premier event of the day, went to Mrs. J. C. Skinner, of Stockton. Other prizes also were captured by women drivers.

On Saturday, the Fourth of July, the cars traveled along some 100 miles to Del Monte, the famous California resort. Here luncheon was served to the scores of guests of the company on the lawns under the massive spreading oaks. During the evening there was a special display of fireworks in front of the great hotel for the benefit of the Mitchell party. On the following day, Sunday, the owners went around the world-famous 17-mile drive on a speed-judging contest, the time required being 1 hour and 30 minutes. The trophy was captured by an owner who judged his speed almost to the minute. During the afternoon the cars set out for their various homes and the annual reunion was at an end. Secretary Rogers is delighted with the success of the big affair.

DENIED BY APPERSON

Chicago, July 14—Rumors from Toledo that the Appersons were negotiating for the purchase of the Pope-Toledo plant in that city for \$500,000 fail of verification, Elmer Apperson writing from Kokomo, Ind., to Motor Age, declaring: "This company has not at any time had anything to do with negotiations for the Pope-Toledo plant at Toledo."

STAND BY THEIR GUNS

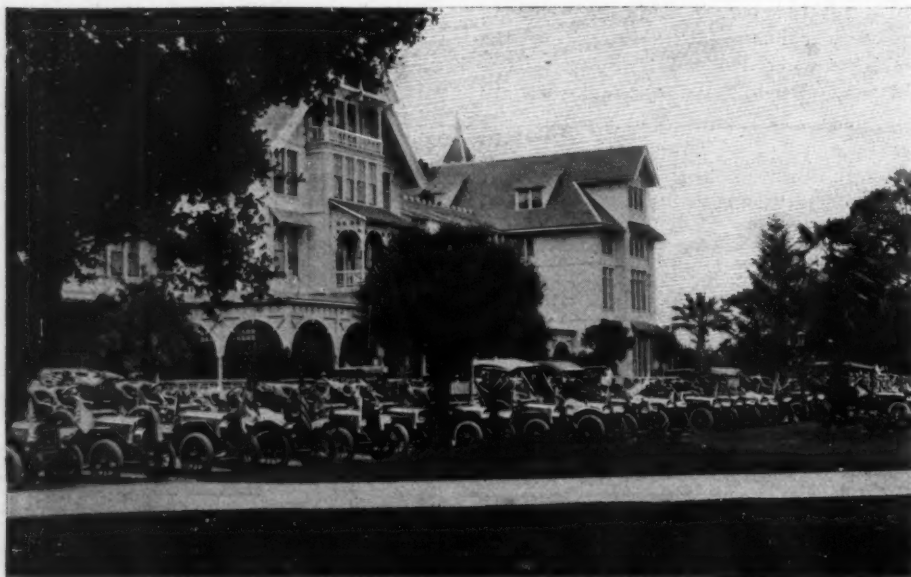
A. A. A. Officials and Motor Car Makers Again Refuse To Change the Vanderbilt Cup Rules

Buffalo, N. Y., July 15—Special telegram—In response to a suggestion made in Paris to the foreign affairs committee of the American Automobile Association that the action of the foreign clubs in refusing to sanction the Vanderbilt cup race of this year would be rescinded if the racing board of the A. A. A. would hold such race under the so-called Ostend rules, a meeting of the central conference committee representing the American manufacturing bodies and the American Automobile Association was held here yesterday. Among others who attended, including representatives of the N. A. A. M., A. M. C. M. A., and A. A. A., were President Thomas Henderson and General Manager S. A. Miles and E. R. Thomas of the National Association of Automobile Manufacturers, and President W. H. Hotchkiss, Chairman Jefferson Demont Thompson, A. R. Pardington and Secretary F. H. Elliott, of the A. A. A. The manufacturers also were represented by S. D. Waldon and R. D. Chapin, of Detroit.

After a full discussion of the situation, both domestic and foreign, it was unanimously decided that, so far as the Vanderbilt cup race of this year is concerned, the same should be held under the rules previously announced by the racing board of the A. A. A. in the opinion of those present, any other action at this time would be unfair to the American manufacturers, particularly in that it would now be impossible for them to build cars which would conform to the so-called Ostend rules, and also, in that there is no assurance that the foreign bodies will continue to observe the Ostend rules next year. Subsequently when the report of the Buffalo proceedings was shown to Alfred Reeves, general manager of the A. M. C. M. A., he unreservedly approved of all that had been done. Mr. Reeves is just recovering from a hospital operation and was unable to be at Buffalo.

The hope was expressed, however, that when a proper representation on the committee which shall frame the future racing rules for international contests is given to the American Automobile Association as the national governing body in the United States and as representing more motor users than all of the foreign clubs combined, as well as an industry which turns out more cars annually than any other country, it would be possible to arrive at a formula equally satisfactory on both sides of the ocean, and thus to hold future international events under such formula.

In this connection, it may be stated that beside having promises of at least ten representative American entries, the



LINEUP OF MITCHELL CARS BEFORE THE HOTEL DEL MONTE

racing board already is assured of the entry of four representative foreign cars, namely, a Mercedes and a Benz, which stood, respectively, first and second in the French race last week, and a Hotchkiss and a Renault, thus giving, even at this early date, the Vanderbilt cup race its old-time international flavor.

The course has been selected. It will be approximately 25 miles long, and is stated by those who are familiar with it to be the fastest in the world, including, as it will, the completed section of the Long Island motor parkway and the state and county roads of Nassau county within an hour's ride from New York.

VLRBOSE A. C. A. EXPLANATION

New York, July 15—Special telegram—From the executive committee of the Automobile Club of America, comes a statement as to why it thinks itself justified in running a race at Savannah for the foreign manufacturers, which event, it is averred, "would not have been organized if the American Automobile Association had seen fit to make the rules for the Vanderbilt cup race accord with the internationally accepted conditions;" in other words, the A. A. A. racing board should have considered the foreign makers first, and not the American makers, an opinion that is not likely to be generally accepted in this country. It is alleged in the "explanation" that at the recent Dieppe session of the international clubs "an unsuccessful attempt was made by the American Automobile Association to supplant the Automobile Club of America." The exact facts are that no effort whatever was made on the part of the A. A. A. committee at Dieppe to become affiliated in any manner at this time, it being made clear that an arrangement of any character whatever would carry with it the acceptance of the so-called Ostend rules. The province of the special committee was simply to make known to the delegates that it was the A. A. A. which controlled racing in America and had always conducted the Vanderbilt cup race, and furthermore, that if any foreign makers participated in the American race, they would have to accept at this time the rules as they now exist, unless the American manufacturers themselves should agree to any modifications.

CLUB WILL STICK

New York, July 15—Special telegram—According to officers of the New Jersey Automobile and Motor Club, that organization has no idea whatever of resigning from the Associated Automobile Clubs of New Jersey, the state organization of the A. A. A. A meeting of the club is called for tonight, at which the subject will come in for some attention. The source of the rumor is well understood, but the club desires to place itself on record as being in favor of a body like the A. A. A.

WINTON GIVES PRIZES

Frank Schneider of New York Captures First Place in the Sixteen-Six Chauffeur Competition

Cleveland, O., July 14—Results in the Winton company's \$2,500 prize competition for drivers of Winton Sixteen-Six cars were announced today. Frank Schneider, chauffeur for Milton Schnaier, New York, who drove his Winton six 11,683 miles in 7 months at a total upkeep expense of \$12, won first prize, \$1,000. Second prize goes to Arthur Donovan, chauffeur for J. Axelrod, New York, who reported a mileage of 7,570, with no upkeep expense. Harry A. Toomey, of Euclid, Ohio, chauffeur for Harry S. Pickands, won third prize on a mileage of 6,632.9, with no upkeep expense. There were ten prizes ranging from \$1,000 to \$100, and the total mileage of the ten winners was 65,687.4, an average distance per car of 6,568.7 miles. The average mileage per month for each car was 1,076.8. Six of the cars ran without upkeep expense. Four cars encountered expense of \$15.12½, an average expense of \$1 for each 4,343 miles. These ten cars were run a total of 61 months, hence the average length of service was 6.1 months. Schneider's expense of \$12 was not incurred until after his car had run 8,000 miles, and inasmuch as no other contestant reached this figure without expense, the judges were unanimous in awarding first prize to him. Toomey's report showed an expense of \$284.85, but as this expense was incurred by an accident happening while the car was in the hands of the wife of the car owner, the judges ruled that it was not chargeable against either the car or the chauffeur. The judges' decisions were based on monthly reports from chauffeurs, certified by the owners, and final affidavits from both own-

ers and chauffeurs. Contestants exceeding 3,000 miles were awarded gold watches suitably engraved. Following is the record of the winners:

First prize, \$1,000—Won by Frank Schneider, chauffeur for Milton Schnaier, New York. Ran 11,683 miles in 7 months, averaging 1,669 miles per month. Upkeep expense, \$12.

Second prize, \$500—Won by Arthur J. Donovan, chauffeur for J. Axelrod, New York. Ran 7,570 miles in 3.5 months, averaging 2,162.8 miles per month. Expense for upkeep, none.

Third prize, \$250—Won by Harry A. Toomey, chauffeur for Harry S. Pickands, Euclid, Ohio. Ran 6,632.9 miles in 10 months, averaging 663.3 miles per month. Upkeep expense, none.

Fourth prize, \$150—Won by Charles L. Bonner, chauffeur for James T. Brennan, Brooklyn, N. Y. Ran 6,806 miles in 8 months, averaging 850.7 miles per month. Upkeep expense, \$3.

Fifth prize, \$100—Won by James Boice, chauffeur for Warren Somers, Atlantic City. Ran 6,183 miles in 7 months, averaging 883.3 miles per month. Upkeep expense, 2½ cents.

Sixth prize, \$100—Won by A. R. Cowperthwaite, chauffeur for Mrs. L. R. Speare, Newton Center, Mass. Ran 6,113.6 miles in 4.5 months, averaging 1,358.5 miles per month. Upkeep expense, none.

Seventh prize, \$100—Won by Joseph Arnold, chauffeur for Joseph Fish, Chicago. Ran 5,585 miles in 6 months, averaging 922.5 miles per month. Upkeep expense, none.

Eighth prize, \$100—Won by James Townsend, chauffeur for H. H. Roelofs, Elkins Park, Pa. Ran 5,415 miles in 6.3 months, averaging 855.4 miles per month. Upkeep expense, none.

Ninth prize, \$100—Won by G. W. Butler, chauffeur for J. E. Clenny, Chicago. Ran 5,155 miles in 3.2 months, averaging 1,628.2 miles per month. Upkeep expense, none.

Tenth prize, \$100—Won by E. C. Knapp, chauffeur for E. A. Rooney, Buffalo. Ran 4,594 miles in 5.5 months, averaging 835.3 miles per month. Upkeep expense, 10 cents.

Summary—Ten cars ran 65,687.4 miles in 61 months, averaging 1,076.8 miles per month, per car. Upkeep expense, \$15.12½, averaging \$1.51 per car; or 25 cents per month per car.

DRAWS LINE ON AGENTS

New York, July 14—Special Telegram—The licensed association has compelled the Peerless, Oldsmobile and Cadillac makers to cancel their agency contracts with the Centaur company, of Buffalo, on account of its handling the Oakland. This is the first shot in the campaign to enforce the license clause in the dealers' contracts. Through making low-priced cars by licensed manufacturers the association now is able to do this where normal suasion was used formerly. The dealers now are to be prosecuted as co-infringers.



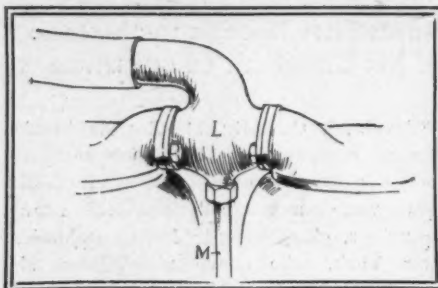
MITCHELL LUNCHEON UNDER TREES AT HOTEL DEL MONTE

INDIANAPOLIS FACTORY ART AND SCIENCE

FOR many years prominent in flour-milling machine construction, possessed of a magnificent and beautifully situated plant in the city of Indianapolis, and an inexhaustible fund of industry, the Nordyke & Marmon Co. is exceptionally interesting to the student of modern motor car practice. The Nordyke & Marmon product stands in the same light to American practice that the Lanchester has occupied in European; that is to say, a car of exceptionally sound construction yet full of original ideas. There have been some radical changes in the Nordyke & Marmon product for 1908, changes which experience showed to be justifiable under the march of conditions, but all of the principles which characterized the design of the first Marmon car still remain, although elevated to a higher plane of development. The new Marmon engine is an especially fine piece of work, and incorporates many features which the close observer would doubtless trace to a searching acquaintanceship with the highest grade of foreign practice. There are some excellent original ideas, however, incorporated in its construction, but these are mostly found in the details and not in any of the functional essentials.

Complete Oiling System

Probably the most interesting from a purely mechanical point of view is the



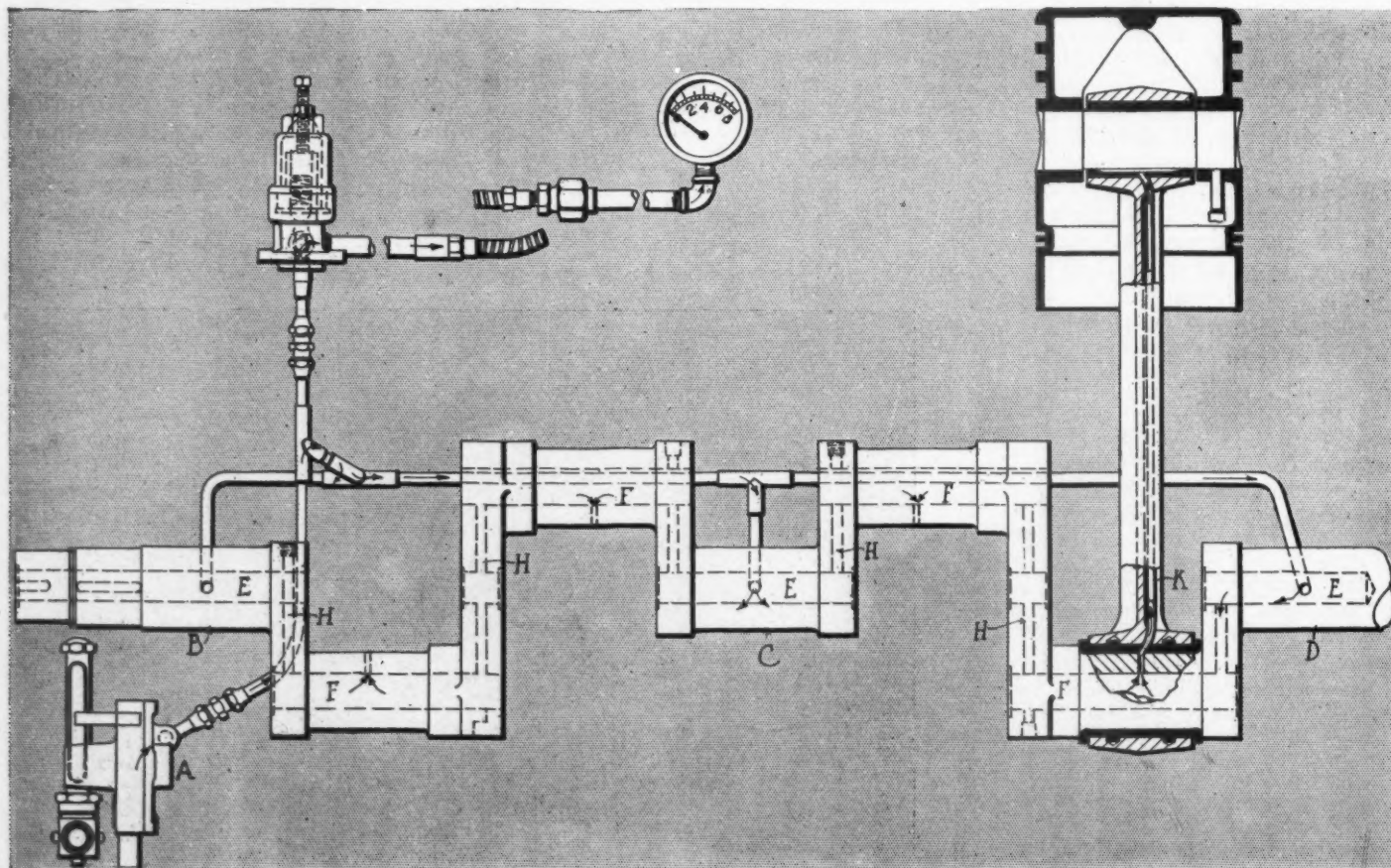
MARMON WATER UNION

system of forced lubrication, and although this system is not uncommon abroad, it is used by few people in this country. As shown in the diagram, it consists of a gear pump A taking oil from the base of the crankchamber forming a reservoir, forcing it thence to the crankshaft bearings B, C and D, which are grooved to receive the flow. Drilled so the grooves may supply oil to them are holes in the crankshaft journals which communicate with a passage E drilled through the center of the shaft, through the crankwebs H and through the crankpins. Thus there is a complete oil passage through the crankshaft. The crankpins H are drilled to permit the egress of oil and the connecting rod bearings also are suitably grooved to distribute it. From these, however, an aluminum pipe K is run to the piston pin

bearings, whence it can escape only by passage along the piston pin, thus insuring complete lubrication of this usually indifferently lubricated portion of the engine's anatomy. It is found that with the pump giving a pressure of approximately 2 pounds an ample flow of oil is kept to all parts, which flow of oil is proportional directly to the speed of the engine, and independent of the amount of oil in the system, provided, of course, there is sufficient to provide for the pump immersion. Another rather pretty construction is the way in which the upper water connection is made.

Unique Car Details

Most of Motor Age readers know that the Nordyke & Marmon company utilizes a three-point suspension for the unit upon which is mounted the engine and transmission. The employment of this floating system makes it imperative that flexibility between the engine and the radiator shall be insured, so that a long rubber hose is utilized in place of the usual short section. The waterjacket covers carry opposed flanges between which a T fitting L is located. This T fitting also carries the union for the connection M to the carbureter waterjacket. Another interesting feature of this engine is the way in which the valve tappet lifters which carry the rollers which bear on the cams are located.



THE POSITIVE LUBRICATION SYSTEM OF THE MARMON ENGINE, SHOWING DRILLED CRANKSHAFT

The rocking lever is bracketed to a circular flange or cover which registers in the crankcase. This and its adjacent fellow are held in place by a yoke and a central bolt which secures the two but renders them easily detachable. A feature of the Marmon valve system is the absence of a screw adjustment. The upper end of the valve tappet is drilled to receive a hard steel T-shaped tip, and any adjustment is made by adding or taking away shims below this tip. It may seem at first sight that this system is a little crude, but it certainly makes for simplicity, and one thing is sure, that after an adjustment has been made it certainly will remain fixed.

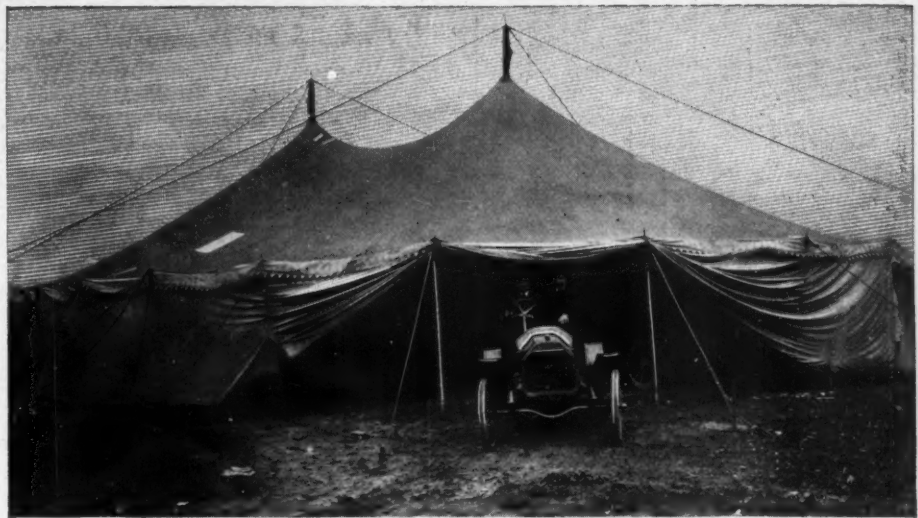
For Gasoline Pressure

Another very interesting thing, and one which is novel in this country, is the use of a small air pump, cam-driven from the camshaft on the exhaust side of the engine, for maintaining the pressure on the gasoline. This pump has a bore of about 1 inch and a stroke derived from an eccentric cam of about $\frac{3}{8}$ inch, with a spring return. The suction valve is mounted on the head of the piston, and the delivery valve, which consists of a small ball, held down to its seats by a spring which is located in the cylinder cover, which also carries a relief valve. The relief valve, also of the ball check pattern, is larger than the pump check valve in order that the cylinder head containing both may be made a one-piece job. In order to secure this end the pump check valve is first dropped in and then its retaining spring got into place by means of coiling it more tightly in order to secure the reduction of diameter necessary to pass into place. Above this then comes the relief valve, which also has a superimposed coil spring adjustable to determine the maximum pressure on the gasoline. Another check valve is floated on the line between the pump and the gasoline tank, but this is done merely for the sake of precaution and to insure a perfectly tight connection at all times. The interesting point about this pump is the lack of noise, for as a general rule any small air pump is apt to make considerably more sound than warranted.

Double Three-Point Suspension

One of the principal constructional features of the Marmon car is its double three-point suspension. The engine and transmission are mounted upon a subframe pivoted to the mainframe triangularly, the base of the triangle being forward and at the apex in the axis of the drive. This entails the inclination of the subframe carrying the engine and transmission rearwards in order to secure that desirable feature, a straight line drive, in conjunction with the equally desirable quality of ample clearance. The system of forced lubrication used entirely obviates trouble from this inclination.

A novel feature is the arrangement of



OVERLAND CARS BEING BUILT AND ASSEMBLED IN TENTS

the clutch and striking mechanism. In the first place a multiple-disk clutch with cork inserts is used. In the second place comprehension of the failings of the disk clutch has led to the adoption of an ingenious automatic clutch brake; and, thirdly, the clutch-striking mechanism is all safely ensconced in an extension of the gearbox away from the dust and dirt and always lubricated.

Supporting Ball Bearings

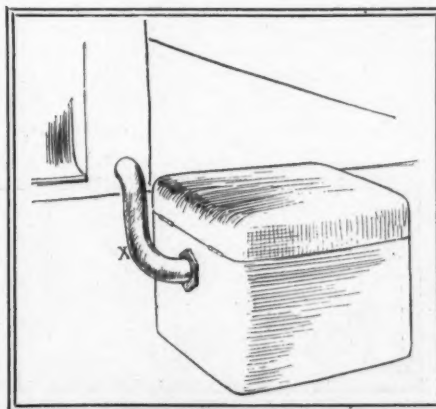
While talking of the National company's product mention was made of the fact that it has found the insertion of radial ball bearings in hard aluminum alloy cases without the use of intermediate cages perfectly satisfactory. In the Marmon machine a wide devirgence from this practice is noticeable, for wherever a radial ball bearing is used a cast steel cage is employed to retain it. In the transmission quite an original system is employed, the shafts with their bearings being supported in cast steel spiders which register into the gearcase, being securely bolted into place. The means of retention of these bearings is most ingenious. The cage is tapped for a $\frac{1}{4}$ -inch setscrew, under the head of which a washer is located. This washer bears segmentally upon the outer race of the bearing, this retaining it in place against end pressure. A number of these retainers are used

about the periphery of the bearing race and the whole is securely locked by a wire threaded through holes in the heads of the setscrews.

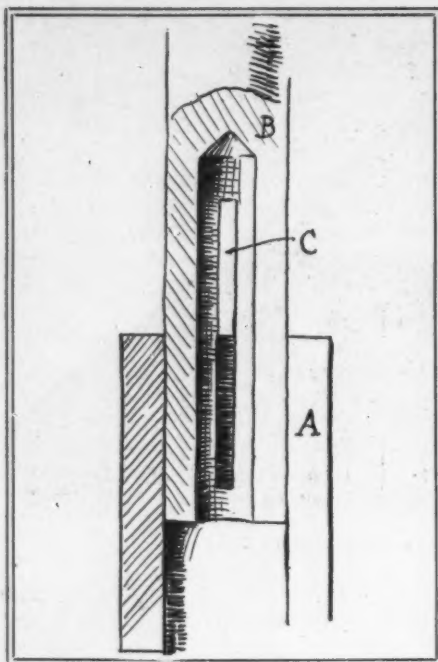
As with any car having this distinctive ingenuity of design, it is difficult to select just the points which are most interesting, exacting in the same way that it is difficult to describe with lucid reading interest a machine that differs in nothing from an accepted past standard. One cannot help, though, being impressed at the Marmon factory at the enormous amount of detail work through which the producers must have fought their way to their present status. There is no crudity found anywhere—the Marmon method is used all through, but perfection of purpose has certainly been reached. Look, for instance, at the way in which the battery leads are taken care of. The sketch shows the copper tube X encasing them, carrying them up to safety from weather conditions within the haven of the dash.

Overland in Tents

To leave the Premier and Marmon factories and in a little while come to the Overland factory is to leave a staid eastern city and drop down in a real live western town. They are surely "going some" at the Overland plant. They are literally building machines in large tents grouped about the factory precincts and every available inch of ground space is crammed with men who are being persuaded to do their utmost to bear their part in the production of the Overland success—for it has been a success, this little machine. Everybody at the Overland plant has the most irregular habits as regards eating and sleeping and quite regular ones as to work all the rest of the time; but through it all they carry a look of satisfaction that is unmistakable. On the dusty, bumpy road that runs past the factory doors test cars tear up and down just as hard as the men driving can send them. From a tent in the rear comes a continuous high-frequency rattle that tells of many engines on the test stands. In



MARMON'S PROTECTED WIRING



UNIVERSAL CARBURETOR'S NOZZLE ADJUSTMENT

the factory proper no one has time to talk, for each and every one of them is a slave to success. The great rivalry of the plant is for the assemblers to beat the body builders, and it's a dead-heat race most of the time.

Is an Interesting Car

It's a neat little machine, too—it looks well, behaves well, has snap, power, speed and is exceptionally quiet. The writer has rarely ridden in a quieter low-powered car, and this feature of the Overland is the more remarkable since the change speed gear is of the planetary order located about the rear axle. There are some things in the construction which are hardly conventional, but some are exceptionally effective. One is the arrangement of the forward engine gears. These are of the single helical type, and as such except that it is rare practice to find on a low-priced car, not remarkable. There is, however, a point of novelty that is distinctly worth while. The gear on the crankshaft has an extension to it which is free to turn on the shaft. By means of small springs tendency to relative motion is maintained between the gear proper and the extension, with the result that backlash in the gears working with the divided engine gear is entirely eliminated, irrespective of the amount of wear involved.

Prest-O-Lite's Hustle

It is curious how the creation of an industry brings others in its wake. Few people have any idea of the magnitude of the motor car industry per se of the United States, and still fewer of the extraordinary versatility of allied trades. For example, every motorist is conversant with the Prest-O-Lite tank and is thankful for the boon its invention conferred upon motors and mankind, but not a tithe

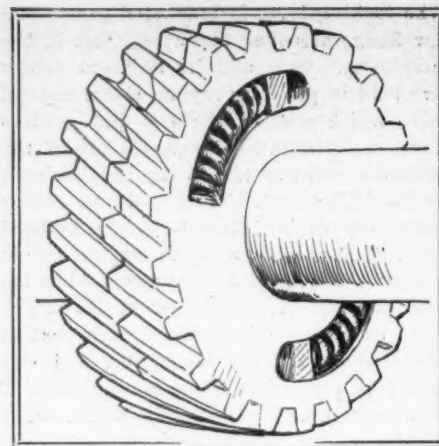
of the interested public has any idea of the magnitude of the organization necessary to handle the manufacture and recharging of such an itinerant accessory. Prest-O-Lite tanks are of course charged at various central local stations all over the country, but the bulk of the manufacturing is done at the Indianapolis plant, although the drawn shells are from further west.

Most of Motor Age's readers know the "safety storage process," but for those who are ignorant of it the principles involved will be briefly reviewed. The shell is filled with a porous absorbent body, partially saturated with pure acetone, a chemical closely allied to ether, which has the property of absorbing acetylene gas to an extraordinary degree, which absorption properties are increased by the gas being introduced to the acetone at high pressure. During the process of absorption the acetone almost doubles its volume and its weight increases.

Scheme of Manufacture

The practical adaptation of these principles constitutes the Prest-O-Lite manufacturing process. The seamless steel shells are filled with an absorbent asbestos compound and the ends are brazed in. A known quantity of pure acetone is then introduced into the shell through the medium of the valve by means of a vacuum system. The tanks are then coupled to a pressure line carrying pure dry acetylene gas made from calcium carbide and water in huge generators and thoroughly scrubbed, dried, and after passing the compression of oil freed they are left on until heating of the tank from the internal absorption warns the operator that the first stage of filling is complete. The tanks are permitted to cool and gas again turned on, when, as a rule, the filling process completes itself.

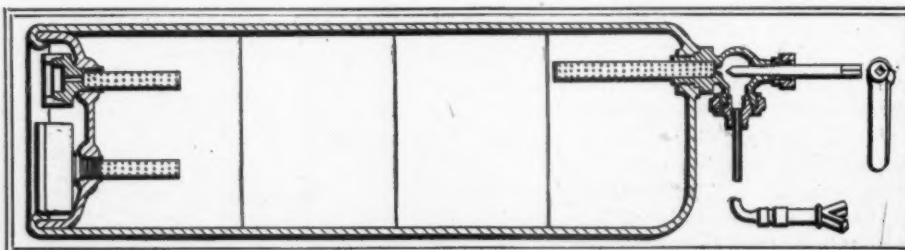
To go closely into the process involved from a manufacturing standpoint would be exceedingly technical and, although interesting, somewhat out of place. To the lay mind by far the most engrossing of the mysteries of the Prest-O-Lite tank is the way in which its travels are tabulated. In the center of an annular table sits a young woman, and about her, placed radially, are card trays carrying ordinary card file size cards. These cards are serially and consecutively numbered and each card represents a tank—different sizes of tanks are accounted for by different colored cards. One side of each card is devoted to shipping instructions,



OVERLAND SPRING CRANKSHAFT GEAR

with dates of shipment; the other to origin of consignment and dates, so that by taking a card out and glancing at either side consecutively one can tell exactly the tale of the journeying of that tank with reference to the home office. It's a marvel the way those tanks get around, almost like a fairy tale. A tank will start out from Indianapolis for New York and finish up in San Francisco months and months afterwards. The Prest-O-Lite company has its troubles, too. People manage to get the tanks full of water once in a while, although how it is done is a mystery to the firm. Then, notwithstanding instructions, they will insist on putting tanks on upside down, etc.

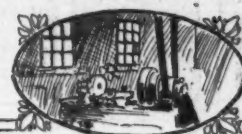
A concern that has been steadily working along in the motor car accessory business for a long time now is the Speed Changing Pulley Co. Apart from the manufacture of double-opposed and four-cylinder air and water cooled engines upon entirely standard lines, it also is established in the carburetor branch of the industry. The carburetor this firm makes, now known as the Speed and recently as the Universal, is fairly well known to Motor Age readers. To the mind of the writer, the jet device whereby the gasoline flow is regulated is one of the cleverest extant. It consists of a hollow stem having two very narrow saw cuts made in it. These cuts are meshed more or less as the gasoline supply is to be increased or cut down, as the case may be. This is particularly effective as an adjustment, as with it a change in the gasoline feed is quite gradual in its bearing upon the behavior of the carburetor. This firm, too, is experimenting at present with a high wheel buggy-type machine.



SECTION OF PREST-O-LITE TANK FOR STORING ACETYLENE GAS



Motor Car Shop Kinks

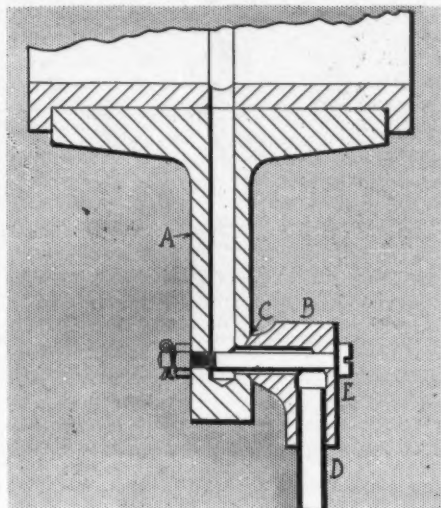


LOCKING LOOSE HUB CAP

A hub cap, particularly of a plain bearing car whose hubs are greased instead of oiled, will unscrew rather easily if its threads are a loose fit. This is particularly the case with the right-hand hub caps, since the viscosity of the grease results in a constant effort to unscrew them. As good a way as any to lock the cap is to chip the notch, A, in the flange of the bronze bushing in the hub, and to arrange a set screw in the cap to enter this notch. If the set screw is of the ordinary hardened sort and holds only by its own pressure, it is liable to shake loose some time or other. A better plan is to use a button head $\frac{1}{4}$ -20 screw of ordinary steel, running the threads clear up to the head by means of a die. A notch is filed in the head of the screw, as shown at B, and the screw is cut off to such a length that the head will bottom on the cap when the end of the screw enters the notch A, then a burr is raised at B in the brass of the cap with a prick punch; thus the screw is secured against turning until it is wanted to do so. The same expedient is useful in many other places where it is desired to keep a screw from loosening.

OIL PIPE CONNECTION

The ordinary pipe fittings are not always reliable for oil and gasoline pipes subject to vibration, and where the failure of a connection would involve serious consequences, as in racing engines, a better form of connection is desirable. The illustration shows a special form of union devised by Crane & Whitman, of Bayonne, N. J., for important oil pipes. It is shown in service carrying oil to the under side of a main shaft bearing. The bottom cap A of the bearing is deeply ribbed and the oil duct is drilled in the rib. The connection itself takes the form of an L-shaped



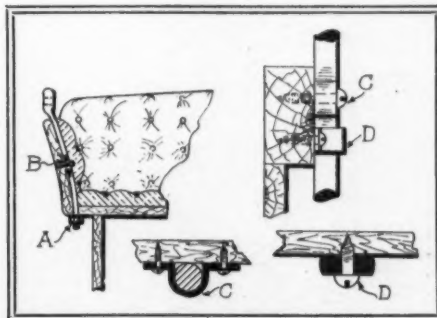
AN OIL PIPE CONNECTION

steel union B having a ground seat at C and brazed to the oil pipe at D. A special screw E passes through the union and is threaded into the further side of the rib. The oil goes around the screw, and a lock nut and cotter pin insure against coming loose.

Should an oiler reservoir begin leaking where one of the oil leads attach to it, the only suitable solution is the immediate soldering of it. The use of adhesive tape will sometimes suffice for a time, but the vibration generally renders it a poor repair. A small soldering iron is a most valuable part of a repair kit, and with it a soldering repair can be made in less than 20 minutes. Oilers have been taken off, a fire built by the roadside and the soldering done in less than 15 minutes.

ANCHORING TOP IRONS

Cape cart hood irons are sometimes attached to the front seat as illustrated, which indicates the appearance inside the arm of the front seat with the upholstery stripped away. The lower end of the iron goes through the overhanging part of the seat and the nut, A, is on the outside. The iron is steadied by an ordinary wood screw, B, which goes into the framing of the arm. If the iron is curved as the

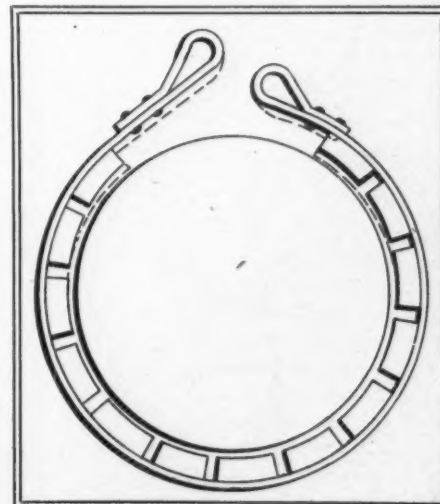


ANCHORING CAPE CART HOOD IRONS

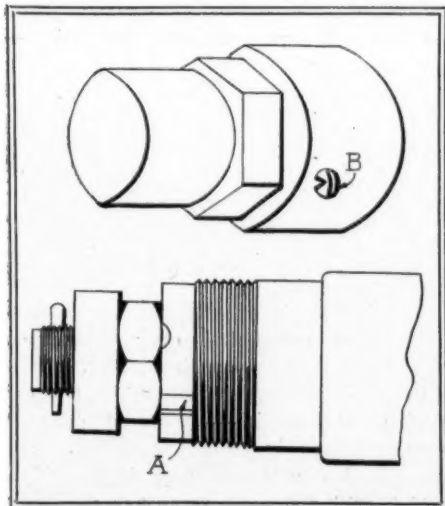
sketch shows, there is a considerable leverage on B, tending to break it off. If it breaks the free movement of the arm tears the upholstery. A permanent job can be made by drilling the hole through which B passes and putting in a slightly larger screw, C, and also putting on a strap, D, beneath it. This strap, D, then does the greater part of the work, and has the effect of causing any twist applied to the iron to be held by the screw, C, where it enters the wood, instead of exerting a leverage against it just under the head.

FITTING NEW BRAKE BANDS

Brake bands having cast iron or brass shoes riveted to sheet steel bands expand and contract through a very small diameter, and when new they must be very carefully fitted to the brake drums or they will drag and heat. As one cannot depend on their being bent to precisely the right diameter, when they come from the factory, it will save time to test this point before putting them in place. This is easily done and with sufficient accuracy by drawing a circle on a board and laying the new bands over this circle to see how nearly they match. If the brake drums can be calipered, the circle should be of the same diameter as the drums, and the bands should clear this circle somewhat as shown exaggerated in the illustration, since the principal bending of the bands will be at the bottom portion. This applies if the weight of the bands is supported clear of the drums. In some cars this is not the case and the upper portions of the shoes rest constantly on the drums. This requires these upper portions to be bent downward slightly, to almost their gripping position, as indicated by the dotted lines in the upper part of the illustration.



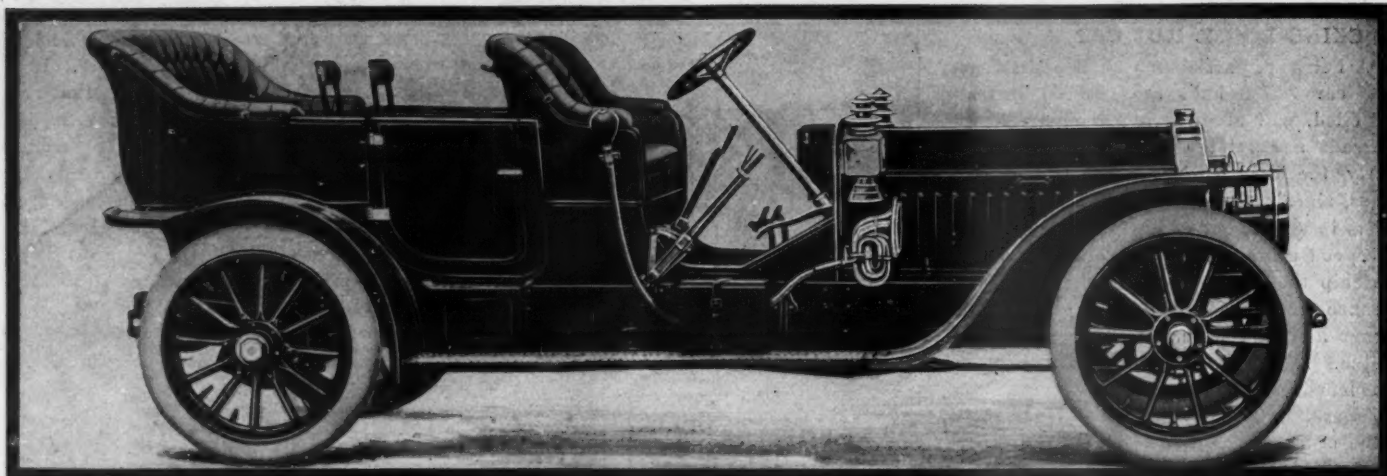
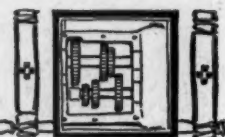
FITTING NEW BRAKE BANDS



ILLUSTRATES LOCKING LOOSE HUB CAPS



Motor Car Development



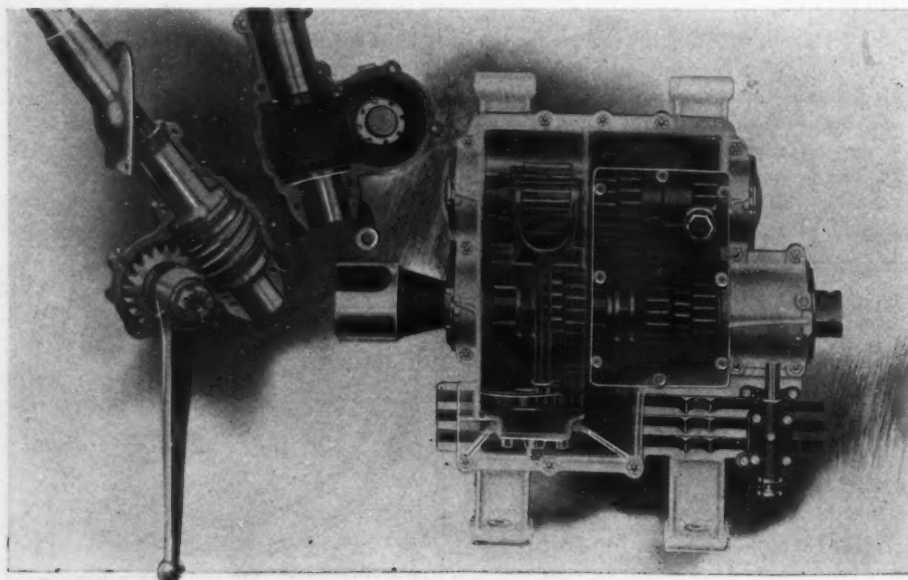
PEERLESS COMPANY'S 1909 MODEL 25 SIX-CYLINDER, 50-HORSEPOWER TOURING CAR

THE 1909 Peerless undoubtedly will enjoy the distinction of being one of the few makes of cars whose manufacturers pin their faith to the supremacy of the standard car. It confines itself to two chassis models—No. 19, a four-cylinder 30-horsepower, and model 25, a six-cylinder 50-horsepower type. These models, while listed as above, according to the A. L. A. M. rating would be 38 horsepower for model 19 and 57 horsepower for model 25. Following the foreign practice, either of these chassis can be purchased without body, allowing the owner to exercise his choice for a special carriage-maker's works, although the chassis may be purchased with touring car, roadster, limousine or landaulet body if so desired. The product of the Peerless Motor Car Co. shows few radical departures from the 1908 models, the changes being in the nature of refinement, tending to produce a silent running and comfortable car.

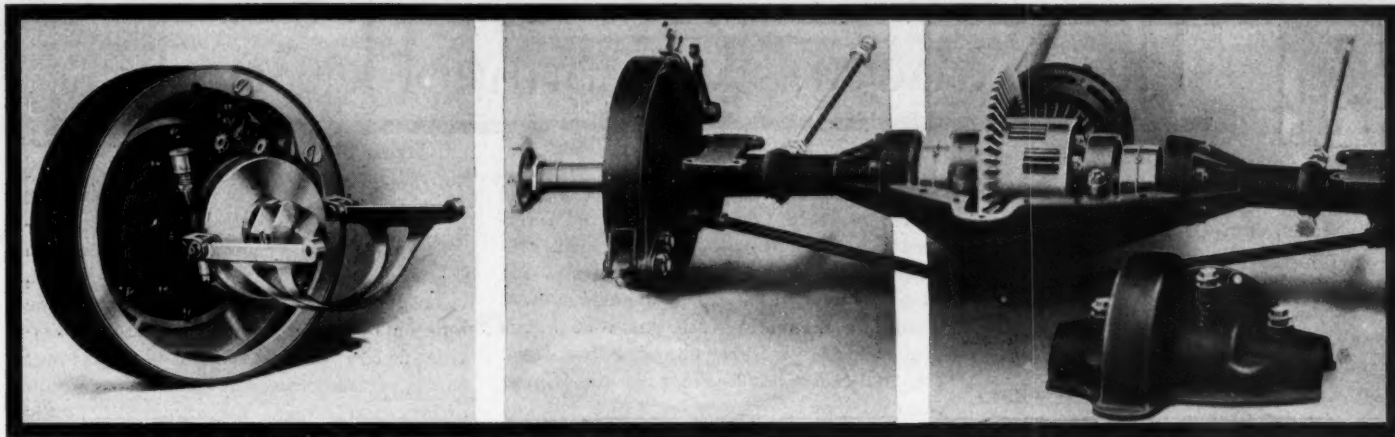
The cylinders are cast in pairs, $4\frac{7}{8}$ bore by $5\frac{1}{2}$ -inch stroke, of the T shape, with valves on opposite sides. After being bored, reamed and ground they are let in with the piston and rings in place by a special polishing preparation to insure a perfect fit. The waterjackets are tapering, being smaller at the lower part than at the upper, where the temperature is greater. The cover for the water chamber is large to insure a perfect removal of the core sand. Aluminum is used for the crankcase, which is divided into compartments for each pair of cylinders, the oil reservoir being cast integral with it. Access to the crankpin bearings is through hand hole plates in the bottom of the crankcase. These plates are fitted with a patented device which consists of a deep pocket in the lowest point to act as a receptacle for any dirt or sediment in the oil. The crankshaft is a solid one-piece drop forging, heat-treated and

ground accurately to size. The front bearing is of the annular ball-bearing type fitted with a stuffing box to prevent leakage of oil. The rear bearings are of special white bronze metal of liberal dimensions provided with oil grooves and pockets so they are constantly flushed with oil from the crankcase. Every gear of the motor is housed in an oil-tight compartment in the crankcase and runs in oil. This is to insure the elimination of noise and reduce wear on the working parts. The valves are made of special alloy valve steel, are taper-seated, mechanically operated and interchangeable. The carbureter is automatic in its action and provides a suitable mixture for varying motor speeds. A patented double-seated throttle is used, admitting the mixtures to the intake pipe through both seats, so there is no suction for it to overcome. Consequently the throttle is controlled smoothly and easily under the varying conditions of load and grade. The throttle is manipulated by a hand lever on the steering wheel, by foot accelerator pedal and by a governor located on the water pump shaft. The Peerless patented radiator is the same as in previous models and the circulation of water is affected by a herring-bone gear pump, which is silent in its operation and very efficient. Instead of using belts or pulleys to drive the fan, it is driven by bevel gears with a friction disk, joining the driving shaft with the hub of the fan spider.

Lubrication is affected by means of a gear-driven mechanical oiler located on the exhaust side of the motor, which pumps oil through sight feeds on the dash of each cylinder, as well as to each compartment in the crankcase. For emergencies a hand-pump is provided, which will force oil from the oil reservoir into either of the crankcase com-



PEERLESS STEERING MECHANISM AND GEARSET



PEERLESS CLUTCH AND REAR AXLE CONSTRUCTION IN 1909 MODELS

partments at the will of the operator. The level of the oil in these compartments is determined by two standpipes, each of which is provided with petcocks underneath the crankcase. The solid rubber wire bar which was a feature of the '08 model is still retained in connection with the double ignition system. This bar eliminates the multiplicity of wires which tend to make access to motor parts awkward. One ignition system consists of a low-tension Eisemann magneto with an induction coil on the dash to its individual spark plugs. The other system is the familiar battery spark coil commutator to another set of spark plugs. No thumb nuts are used for terminals, all terminals being connected by spring attachment. The use of the solid rubber wire bar and attachments is designed to make the ignition at once simple and free from short circuit. The frame, of cold rolled steel, is slightly longer than in previous models to allow for an increased wheelbase, permitting the front axle to be placed nearly under the radiator. This construction provides more room between the dash and front seats. The motor and transmission are carried on a subframe.

The fenders on the '09 model differ in general design a little from previous models, the only change being that they are square instead of flaring where attached to the front of the running boards. The flare, which has been a feature of

the previous design, is entirely done away with. These fenders are fitted with a wing extending from the inner side of the fender to the frame, to prevent water and mud being splashed on the passengers in the car. The front axle is of I beam section with a one-piece drop forging having the spring seats forged integral with them. The pivot point of the steering knuckle is supported on special ball bearings of large size. The rear axle is of the Peerless floating type, which, by means of universal joint in the live-axle, permits the cambering of the rear wheel. These universal joints, instead of having two contact points, as in previous years, are now designed like the pocket gear in a transmission case with a peculiar-shaped spur gear on the live shaft and a female jaw like an internal toothed gear on the differential gear.

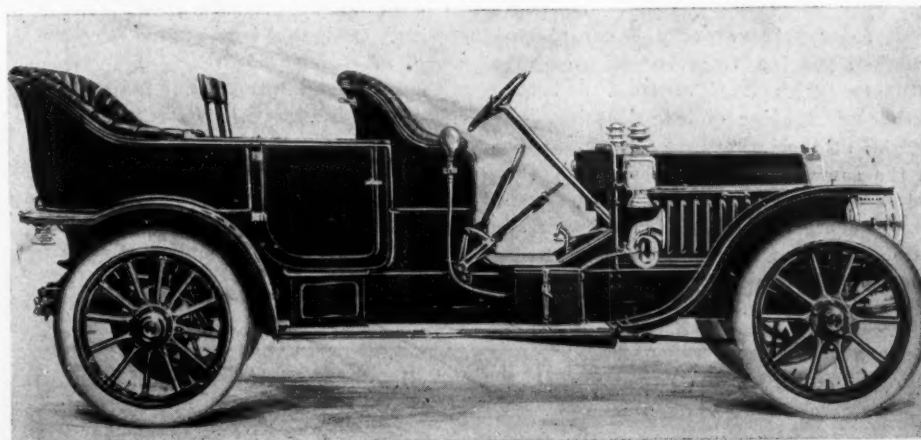
Thirty-six-inch artillery wheels with dished spokes are used on front and rear axles; both front and rear axles are made by Lemoine, of France, from the silico manganese steel. These springs are long and flat and highly polished. Strength is added to the steering mechanism by having the gear, which is a complete wheel, forged integral with the shaft. This gear is in mesh with a worm on the steering post, on the top of which, to provide leverage, is an 18-inch hand wheel. The worm is provided with an imported self-seating spherical thrust bearings having

an adjustment to take up all back lash. The tie rod connecting the steering knuckles is placed abaft of the front axle to protect it from road obstruction. An internal expanding band type clutch, perfectly balanced and light, that will stop rotating as soon as disengaged, permits the gears to be shifted noiselessly. The clutch is simple and accessible.

Between the clutch and transmission is a shaft made of special alloy steel, the ends of which are forked and fitted into universal joints. These joints connect with the squared ends of the clutch and transmission shafts. The object of the universal joints is to take care of the twisting of the frame over very rough roads, and consequent loss of power as well as excessive wear.

The transmission case is an aluminum casting made in two parts, the base containing the main shaft, driving gears and the countershaft with its pinions. The upper part of the speed case holds the mechanism for clashing the reverse gear. The gears and pinions are meshed by sliding gears of the selective type. The mechanism for meshing the reverse consists of a rack, rocker arm and sector with a cam. The feature of the change-speed mechanism is the locking device which prevents the gears from sliding out of place, without changing the position of the change speed lever.

The propeller shaft, through which the drive from the speed gears to rear axle is accomplished, is fitted with universal joints at both ends. The type of universal joint on the propeller shaft of the '09 cars has not been changed, but the joint has been improved in detail by adding ball bearings and enlarging the joint for greater strength and wearing qualities. The universal joint pin of the new model has a groove accurately ground and filled with balls upon which an annular ball race turns. This ball race takes the place of the rollers on the older models and its ease of turning and the assurance of being well-oiled greatly improves the efficiency of the joint. The materials of the joints are of specially treated alloy steel, ground accurately to size.



PEERLESS 1909 MODEL 19, FOUR-CYLINDER, 30-HORSEPOWER CAR



The Readers' Clearing House



COMPOUND GAS ENGINES

Norristown, Pa.—Editor Motor Age—Can Motor Age tell me if compound gasoline or gas engines have ever been built? Why should not compounding be an advantage in the internal combustion motor the same as it is with steam? There seem to be great possibilities in the subject and it appears strange to me that no one has taken it up thus far or if this has been done, that so little has been heard of the results. Some light on the subject would doubtless be of interest to the great majority of the readers of Motor Age.—C. G. G.

Compound gas engines have been built for some years past, and in certain cases have been found advantageous for stationary power service, but the gain is not sufficient to act as an inducement to their further development at the present moment, apparently, as there are comparatively few firms building such engines. A compound gasoline motor has been built in this country for several years past at Middletown, Conn., the car itself being known as the Compound. There are now several taxicabs running around New York city that are fitted with this type of motor, built by the concern in question. The fact that the car has not met with any great success in the 3 or 4 years it has been on the market seems to be due more to the fact that its builders have constantly been in financial trouble, rather than to any inherent defect, either in the principle or the construction of the motor. The latter has two high-pressure cylinders, placed on either side of the low-pressure cylinder, into which they exhaust alternately. Motor Age never has seen the result of any brake or efficiency tests as compared with a single-acting, two-cylinder four-cycle motor, and hence cannot say how the compound compares in this respect with the simple engine. It is not possible to compare the internal combustion motor with the steam engine where compounding is concerned, as the active fluids are of a totally different nature. Steam will return its heat, and in consequence its pressure for a much longer period than will the mixture of gases resulting from the explosion in the cylinder of gasoline engine. On this account it has been found advantageous to expand steam three, or even four, times in an engine before exhausting to the condenser. Steam is utilized at a comparatively low pressure, say 160 to 200 pounds to the square inch at the boilers, insuring a mean pressure of considerably better than 100 pounds to the square inch on the piston of the first, or high-

pressure, cylinder, assuming 160 as the boiler pressure. The piston of the intermediate cylinder will receive about half or less than half the mean pressure of the first cylinder, and third expansion will result in exhausting the gases at about atmospheric pressure or slightly below. On the other hand, the pressure in the internal combustion motor will rise as high as from 300 to 400 pounds to the square inch at the point of ignition, but will drop to 40 pounds or less at exhaust, even in the short-stroke motor car motors, so that the mean pressure will scarcely exceed 60 to 70 pounds per square inch on the piston throughout the stroke. It is this extremely rapid drop in temperature and pressure that prevents the efficient use of the products of explosion in a further expansion taking place in another cylinder. The loss caused by the transfer from the high to the low-pressure and the condensation caused by coming in contact with the comparatively cold walls of the latter, is so great that compounding seems a doubtful advantage, particularly on the motor car motor. The parent Daimler works in Germany experimented with the compound motor 2 or 3 years ago it was claimed that the result of their investigations was a motor much superior than those previously brought out, an improved method of transfer of the charge having been adopted because of this.

SYSTEM IS WRONG

Bristol, Pa.—Editor Motor Age—I have a 1½-horsepower engine in good order, using the make-and-break ignition. The wiring is perfect, but new batteries do not last more than 1 hour. Through the Readers' Clearing House will Motor Age tell me the cause?—B. E. Seyfert.

Undoubtedly the difficulty is not with the motor or battery, but with your low-tension make-and-break ignition. Dry or storage cells are not manufactured for this style of ignition. The make-and-break contact is not of the finest construction, judging from the size of the motor to which it is attached and the spark contact being of long duration, the energies of the battery are greatly wasted. At the same time the real needs of the igniter consume the other half of the battery energy. A suggested solution of the difficulty would be the altering of the system employed in your motor from low to high-tension.

MERITS OF FRICTION DRIVE

Mankato, Minn.—Editor Motor Age—Noting the inquiry of a correspondent in regard to the merits of friction-driven cars on steep hills, etc., I beg to ask the opinion of Motor Age as to the comparative merits of friction drive and other forms of transmission. Which form would deliver the largest percentage of power at the drive wheels?—X. Minnesota.

Concerning the relative merits for the friction as compared with other types of power transmission on the motor car, Motor Age would refer to letters which have recently appeared in these columns under a similar heading. Where its relative efficiency is concerned, it is well known that for certain power purposes where the load is constant and uniform that the friction drive shows a high efficiency and is very practical. Unfortunately, however, such conditions do not obtain on the motor car. It has been shown by an authority on the subject that where the slip exceeds 4 per cent the drive falls off considerably in efficiency and as the conditions of service in motor car work are about the worst imaginable, it would appear to be difficult to prevent this. The load is never constant for any length of time and it is about as far from being uniform as it possibly can be. Still the friction drive has proven considerable of a success on a number of light cars, and the experience of the manufacturers of the latter would seem to show that even under such very adverse circumstances as the necessity for pulling a car out of a hole, or starting from dead on a very steep hill, the friction drive has been able to acquit itself with credit.

LOOKS UP LEGAL POINTS

Franklin, Pa.—Editor Motor Age—The inquiry of "W. L. W.," of Lincoln, Ill., in the last issue of Motor Age opens up quite a case and must be governed entirely by what was reasonable speed used in passing. Did the horses give any evidence of being frightened before the motor car reached them? In *Radnor Tp. v. Bell*, 27 Pa. Superior Court, 1, 5, we find the court ruling: "The fundamental idea of a highway is not only that it is public for free and unmolested passage thereon by all persons desiring its use. * * * The use of a highway is not a privilege, but a right, limited by the rights of others and to be exercised in a



reasonable manner." In reading "The Law of Automobiles," by X. P. Huddy, page 48, I find the following: "The rule of common law is and always has been that, although a person might travel the highway with a conveyance which is likely to frighten horses, yet while doing so he must exercise reasonable care to avoid accident and injury to others traveling along the highway." In support of this is cited *Murphy v. Wait*, 102 N. Y. App. Div., 121, 92 N. Y. Supp., 253. See also *Upton v. Windham*, 75 Conn. 288, 293, where the court said: "The passing of a motor car driven with ordinary care and at a reasonable speed, and the fright and shying of a gentle horse, constitute one of those events in the proper use of the highway calling for its maintenance in safe condition." The use of the roads by motor cars and the accidents common thereto have made a whole lot of new "law," as has been said by someone, but such is not the case. In the absence of a statute then the common law will govern. The number of cases which have been decided are very few and are not a little scattered, so it is necessary to do a heap of hunting for authorities. The book from which I have quoted is about the best one I have found and should be in the hands of every lawyer in the country. It is the "Law of Automobiles," by Zenophon P. Huddy, LL. B., of the New York bar. It is published by Matthew Bender & Co., Albany, N. Y. I have written this because I rather like digging into new fields for information, and when I came across the question in your paper I began to dig a little. It has done me some good, and I hope may be of some service to the one who makes the inquiry.—John A. Wilson.

MAKES NELSON DRESSING

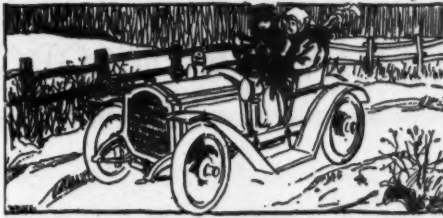
Tuscaloosa, Ala.—Editor Motor Age—Will Motor Age give me the address of a concern which handles a morocco dressing suitable for red leather, such as is used on motor car upholstery?—S. F. Alston Co.

The Jewell Mfg. Co., 914 Marshall boulevard, Chicago, manufactures the Nelson dressing which is suitable for such purposes.

OILING TWO-CYCLE ENGINES

Carlisle, Ind.—Editor Motor Age—Will Motor Age tell me how many drops of oil, per minute, a single-cylinder two-cycle engine of 8 horsepower $4\frac{1}{2}$ by 4 should have, the engine going at 1,000 revolutions per minute? The oiler is belt-driven and works perfectly. Would it be safe to set the oiler so the engine would not smoke when it is running?—Subscriber.

With a two-cycle motor of the size men-



tioned fifteen drops per minute fed into each cylinder will be sufficient to lubricate well and prevent smoking. While this much is being fed into the cylinder walls twenty-five drops per minute is a safe amount to feed into the manifold through which the mixtures travel to the cylinder. This oil passing into the manifold is mixed with the gases and lubricates the cylinder walls. It is perfectly safe to adjust the oiler so that it will not smoke.

MAKES THE CASTLE COIL

St. Louis, Mo.—Editor Motor Age—Will Motor Age inform me what concern manufactures the Castle ignition coil?—W. A. Smythe.

The United Motor Industries, Ltd., Marlborough Place, London, Eng., handles the Castle ignition apparatus, but Motor Age is not aware of the present manufacturer of these coils. For a long time and during the period of their ascendancy these coils were made by C. A. Vanderwell, Actonvale, London, Eng., but this concern has discontinued the work.

WEAK MIXTURES

Williamsport, N. Y.—Editor Motor Age—Is there some engineer, designer or an authority on gasoline engines that will explain to a novice who is having his first experience with a single-cylinder car, in language that I can understand, why it is that a weak, or, as it is termed by some, a lean mixture, gives carburetor shots in a four-cycle engine?—Novice.

While the question does not appear to be aimed at Motor Age directly in this instance, it will attempt to assume one of the three roles mentioned and try to fulfil the qualifications as set forth. Bearing in mind that the mixture is the fuel of the engine, and that as in a stove, the character of the fuel influences its manner of burning, it will be evident that like poor wood, slaty coal or other imperfect fuel, a weak mixture is a slow burner. This is point No. 1. Proportionate to the speed at which it is running, the motor has a certain sharply defined period of time in which it must complete each part of its cycle if it is operated satisfactorily. Should the parts of the cycle lap, or run over into one another, there is bound to be a hitch of some kind. The use of a very weak mixture causes just such a hitch by reason of the fact that it continues burning for some time after

the completion of the part of the cycle during which it is supposed to function, i. e., the power stroke. In fact, it is still burning when the inlet valve opens to take in a fresh charge, and as its burning in the cylinder maintains considerable pressure therein, the latter, on the lift of the inlet valve, escapes through it and the carburetor with a pop, exactly similar to that of an unmuffled exhaust except that it is weaker. The remedy is more gas or less air, or sometimes both, and to find out just how much of each is required, start the motor and very gradually cut down its gasoline supply at the needle valve of the carburetor until the motor begins to miss. Then as slowly increase the supply until the motor will run steadily and without missing on the minimum opening the needle valve. Lock the latter in place. Then speed the motor up by opening the throttle and adjust the spring of the auxiliary air intake on the carburetor until the motor is receiving sufficient to enable to run and develop plenty of power at all speeds.

INTEREST IN GAS LOCOMOTIVES

Silverbell, Ariz.—Editor Motor Age—Will Motor Age give us the address of a manufacturer of gasoline locomotives for use on industrial railroads. We desire one that would run on an 18-gauge track, with about 1,000 pounds draw bar pull.—Imperial Copper Co.

Motor Age is not aware, at present, of any concern making a specialty of gasoline motors of the size desired, or larger sizes. Motor Age has followed up one or two patents granted for motors of this nature but has not noticed any work done on them.

ILLINOIS LICENSE NOT NEEDED

Milwaukee, Wis.—Editor Motor Age—Under the new Illinois law, is it compulsory for outsiders to get an Illinois state license before they are allowed to tour through the state?—Solliday Motor Car Co.

In touring through Illinois it is not compulsory for outsiders to carry an Illinois state license, the only restriction placed upon cars passing through the state being that they carry a license of the home state of the car.

THEY INSURE MOTOR CARS

Genoa Junction, Wis.—Editor Motor Age—Who insures motor cars while in a building or on the road?—C. A. Stone.

The London Lloyds is one company doing this line of work. The Chicago representative is Klee, Rogers & Co., 159 LaSalle street.

MAKING LAMBERT CARS

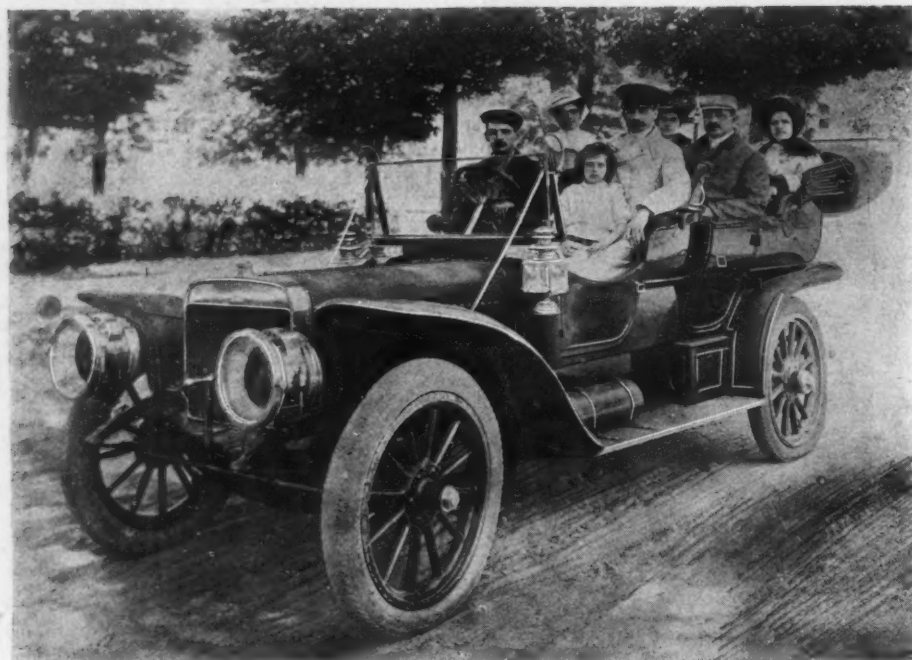
Kalamazoo, Mich.—Editor Motor Age—Through the Readers' Clearing House will Motor Age inform us what motor car concern makes the Lambert runabout and touring cars?—Post Hardware Co.

These cars are manufactured by the Buckeye Mfg. Co., Anderson, Ind.





Among the Makers and Dealers



FRANK SCHNEIDER, WINNER OF WINTON SIXTEEN-SIX CHAUFFEUR CONTEST

New White Branch—The White company has opened a branch in Minneapolis in charge of John H. Toole. A completely equipped shop in which White mechanics only are employed has been started.

New Parts Concern—The Miller Auto Mfg. Co. has been formed at Grand Rapids, Mich., with a capitalization of \$2,000. The purpose is to produce and sell parts and motors. Those who are interested are A. J. Miller, L. L. Conkey and Harry M. Bissell, all of Grand Rapids.

Saxony a Motor Center—The use of motor cars and motor cycles is increasing rapidly in Saxony, as the following statement showing the number registered in January, 1907 and 1908, proves. The number of motor cars increased from 805 to 1,352, while the number of motor cycles increased from 1,416 to 1,907. Of the total of 3,259 motor cars and motor cycles registered in 1908, 1,580 are used for technical and business purposes, 302 by physicians, surveyors, etc.; sixty are motor cabs and 1,182 are used for pleasure purposes.

New Packard on Road—Exactly 5 weeks after the last 1908 Packard motor car went through the final road test, the first car of the regular 1909 output appeared for its tryout. The car was finished Saturday night, June 27, under rather auspicious circumstances. It was past midnight Saturday when the finishing touches were applied and during the next several days this car was honored with an unusual crew of testers. Test body No. 23 facetiously was selected for the occasion. H. B. Joy took the wheel

and was accompanied by W. L. Gleason, superintendent of the factory; E. F. Roberts, assistant superintendent, and William Birmingham, foreman of the road testing department.

Big Order for Rims—An exclusive contract for the rim equipment of 2,500 Chalmers-Detroit 1909 cars has been given the manufacturer of the Marsh rim. It is declared by the Diamond Rubber Co. to be the largest quick-acting rim contract ever written.

Will Talk Peerless—A. J. King, formerly manager of the Philadelphia branch of the Studebaker company and later connected with the Keystone Motor Car Co., has joined the sales force of the Quaker City Automobile Co. He will have charge of the Peerless end of the company's business.

Observations by Tischbein—W. Tischbein, of Hanover, Germany, president of the Continental Caoutchouc Co., maker of Continental tires, who has just arrived from Europe, says: "The business is beginning to be readjusted on the continent. Prices and trade conditions are getting down to a sound basis, corresponding to those that obtain in other departments of trade. A matter that is receiving great attention is the treatment of roads, particularly top dressing of macadam highways so as to prevent unnecessary wear from the action of heavy cars at high speed. It is quite possible so to treat roads that little or no injury is done by the motor cars. A curious fact revealed by the tests under direction of the Ger-

man government within the past 5 years is that tires with steel studs on the tread do not injure a road as much as tires having a plain tread. This is due to the fact that there is less suction when the tire is steel-studded." Mr. Tischbein's stay in this country on this trip will be a brief one. He will return home shortly.

English Are Interested—The Electric Vehicle Co., Limited, of London, England, has ordered of Maxim & Goodridge a complete chassis of the new Maxim-Goodridge light electric. This was done with the idea of testing out the worm drive, and it is said a large order for the new Hartford machine is pending.

Hartford's New Garage—Charles F. Pond, of New York city, has under construction on Trumbull street, Hartford, Conn., a brick garage. Just who is to occupy the new station is not given out at this time. It is understood there will be apartments over the garage, while stores will occupy the front of the building. The location is central and convenient to the hotels and business district.

Another A. M. C. M. A. Member—Another motor car concern has been admitted to membership in the American Motor Car Manufacturers' Association, the Grabowsky Power Wagon Co., Detroit, Mich., maker of commercial vehicles. The general manager and designer, Max Grabowsky, was for several years connected with the Rapid Motor Vehicle Co., Pontiac, Mich., of which his brother, Morris Grabowsky, is secretary.

Kansas City Changes—E. P. Moriarty & Co., of Kansas City, have purchased the property at 1510 Grand avenue, where the construction of a two-story and basement thoroughly fireproof garage will be commenced soon. Besides the Midland Motor Car Co., these Kansas City concerns are planning to locate on Grand avenue: Fisk Rubber Co., 1604-06 Grand; Palace Auto Co., Studebaker Brothers Mfg. Co. and perhaps the Ford Motor Co. The Kansas City agency for the Cadillac has been taken by the Central Auto and Livery Co.

Hatch Now a Dealer—Mason B. Hatch, sales manager of the E. R. Thomas Motor Co., of Buffalo, N. Y., has resigned his position to go into the retail field. He will handle the Chalmers-Detroit line exclusively in Buffalo and surrounding territory. Mr. Hatch is the second sales manager of a motor car manufacturing concern who has joined the ranks of the Chalmers-Detroit dealers. Only a few days ago it was announced that Charles B. Shanks, formerly sales manager for the Winton Motor Carriage Co., has resigned to take on the Chalmers line for Cleveland and northern Ohio.



From the Four Winds

N S E W



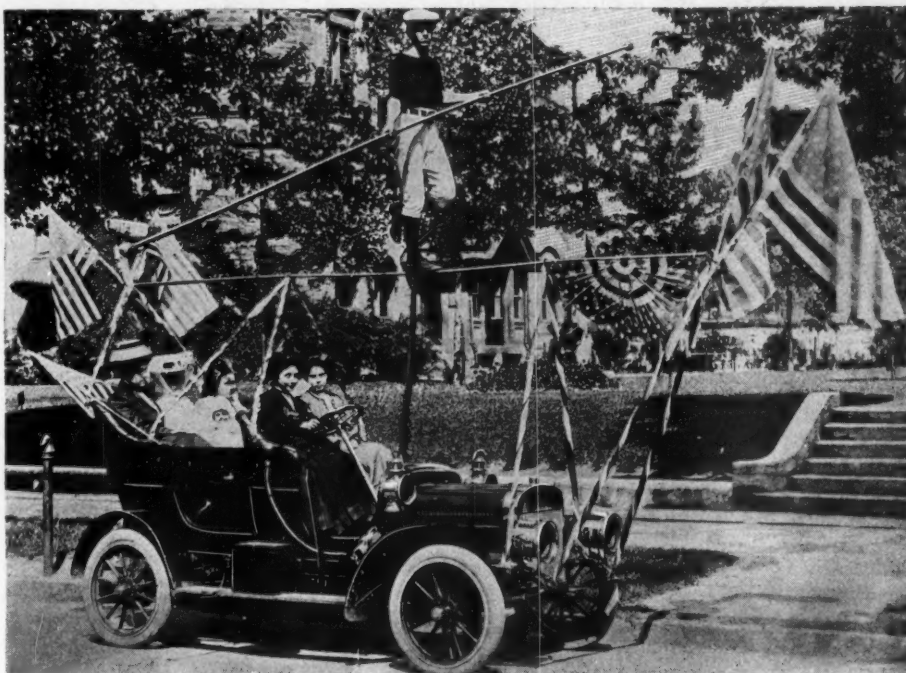
Made in Peru, Ind.—The Great Western car that participated in the Kansas City hill-climb was made by the Model Automobile Co., of Peru, Ind., instead of by a Leavenworth concern. The car is by no means a newcomer, its makers having been building for the last 5 years.

Owen Again President—For the third time W. W. Cowen has been chosen president of the Automobile Club of Kansas City. The membership of the club is now 229. The other officers are as follows: First vice-president, Elliott M. Jones; second vice-president, W. G. Coumbe; secretary, W. P. M. Stevens; treasurer, Frank J. Dean; directors, W. G. Whitcomb, Dr. E. M. Hetherington, Frank P. Ewins, George H. Davis, J. W. McKeeknie and D. E. Gudgel.

Dunn Breaks a Record—Tom Dunn broke the record for a Pittsburg-Buffalo trip last week by making the run there and return in 21 hours 7 minutes. He used a Maxwell roadster and expected to make the run and return in 24 hours. With a party of four he left Hotel Schenley in Pittsburg at midnight Friday, July 10, and arrived at Buffalo at 11:50 a. m. Saturday, July 11. It left Buffalo at 1:25 p. m. Saturday and pulled up at the starting point at 9:07 p. m. the same day. This was in spite of several vigorous interviews with the police of Erie, Pa., who were bent on stopping the car.

Another Track Meet—So successful was the recent race meet of the Quaker City Motor Club at Point Breeze track, Philadelphia, that a midsummer meet, on the same track, has been scheduled for Saturday, July 25. The star card of the program will be a 100-mile race, for which there are already four entries. To fill out there will be a 25-mile event for high-priced cars, a 10-mile race for \$1,250-or-less cars, and a 5-mile contest for fully-equipped stock cars and roadsters, driven by amateurs. Work on getting the track into shape will begin on the previous Monday, when daily oil-and-roller treatment will be in order.

Maxwell Challenges—The Maxwell-Briscoe Motor Co. refused to enter the Glidden tour this year on account of the new rules under which the cars are classified according to their selling price. This, according to Mr. Briscoe, forces the competing cars of moderate price to take a handicap the acceptance of which he regards as a confession of inferiority. In order to prove the mettle of the Maxwell product, Mr. Briscoe has issued a challenge to the winner of the Glidden tour for a run, under the 1907 Glidden tour rules, from New York to San Francisco. The Maxwell people offer a forfeit of



E. D. DOAN UTILIZES MOTOR CAR IN ACROBATIC STUNT

\$2,500 to be deposited with a New York newspaper, requiring the same amount to be covered by the competitor—if any there be.

Cops Are Discharged—Bridgeport, Pa., special motor-cops have been discharged, Solicitor Fox having advised the town council that prosecutions are useless unless a clear violation of the law can be proved, and unless identification is positive. The cops had been making arrests on hearsay and guess, and had "fallen down" so frequently that it was decided to worry along without them.

Parade at Marietta—Marietta, O., devised a unique method of observing the Fourth, by holding a motor parade in the morning. There were some fifty machines in the line, and all of them were gorgeously decorated, in an effort to win one of the three prizes put up by the committee for the best appearing machine. The first award was given to Thomas M. Sheets, the second to Walter Wood, and the third to I. L. Ellis.

Knabenshue Has Hard Luck—While a great many motor cars will accompany A. Roy Knabenshue on his airship flight to Cleveland, the scheduled race between the Toledo aeronaut, and a White steamer, originally planned by J. Lee Cross, publicity manager of the White company, has been abandoned. This was a forced condition because of the fact that Mr. Cross had a schedule of events on certain dates, which could not be neglected. After spending several days in Toledo, during which Knabenshue was unable to get

away, Mr. Cross and the White car returned to Cleveland. Since that time an effort was made to start the race, but the demon of ill luck continued to follow Knabenshue who has been forced to postpone the trial several times.

Wildwood Bills Meet—So successful was the recent carnival of the Motor Club of Wildwood, N. J., that that organization's contest committee has decided to run a mid-summer meet on Saturday, August 1, and a sanction has already been applied for for that date. The Stanley people, whose course record of .43 flat was broken by the 120-horsepower Fiat's dash in :42%, announce their intention of regaining the honor, and Willie Haupt, whose Great Chadwick was not running quite right, is of the opinion that he can reduce the course record to :40 or better.

Unique Motor Stunt—E. D. Doan, distributor for the Carter car in Saginaw, Mich., was once connected with a circus in the capacity of professional balancer. His knowledge thus secured, he employed it in an effective advertising display during a recent circus parade. He equipped a stock car with a sort of trapeze and, with a full load of passengers, balanced on the top bar. With Miss Grace Wolfarth at the wheel of the car, the unique display took its part in the line of the parade, Mr. Doan maintaining his dizzy footing with perfect ease in spite of stops, turns and necessary changes in speed. The circus folk wanted to take Doan with them as a regular feature, but he couldn't leave his business.

THE UNIT SYSTEM A FACTOR IN TRANSMISSION

PERHAPS one of the most serious problems that confronts the average motor car engineer in America and Europe today is the best and most economical way of transmitting power. There have been a large number of experiments made in various types which are commonly known as the transmission axle, the results of which are in favor of this so-called unit system. There are quite a number of reasons why this system should and does save considerable power.

It requires but one universal joint, either single or double. This is one of the points which, most engineers agree, consumes considerable power, while the driving at various angles of the propeller or cardan shaft, through two or three universal joints is also very undesirable. This transmission applied on the rear axle allows the universal joint to be placed immediately back of the clutch and a considerable distance forward of the point where it would be placed in a car, with the transmission carried on the sub-frame, thus reducing the angularity of the propeller shaft to a minimum, and in most cases bringing it practically on a straight line with the crankshaft.

The transmission and differential mechanism being placed in a single housing make it very easy to have it in alignment; this is one of the features that has proven from all experiments, to be the principal factor in the saving of power. It is quite necessary, and has been recommended by all ball and roller-bearing authorities, that to obtain the best results from the use of any type of anti-friction bearing it is absolutely necessary that the bearings be in perfect alignment. This question has been taken up in a very practical way, and it has been found that the unit system of power transmission permits freer action to the bearings, thus reducing the effect of the abnormal shocks and vibration to the bearings.

Efficiency Is Increased

The tests that have been made of this system of transmitting power show a saving of from 16 to 20 per cent of the power applied, or, in other words, it utilizes this much more power at the driving wheels, in the ordinary designs, this amount being consumed by universal joints, angularity of cardan shaft, disalignment of bearings, and many other sources of imperfection which are more easily taken care of in the transmission type of axle than in the various types of plain axles commonly used.

The motor car buyer of today in most cases considers very carefully the simplicity of the car, more than its style or appearance. He is not repeating the troubles which were experienced in the early days of motoring, when many purchasers endeavored to secure a car which,

EDITOR'S NOTE.—Paper prepared by Frank Bremer, member of the Society of Automobile Engineers.

in plain language, consisted of the greatest number of pieces for the money. It is a well-known fact that where the acme of simplicity lies is the maximum of durability.

The motor car equipped with the unit system of power transmission has been taken by many reliable engineers as a parallel to the direct-connected power set or unit found in the latest power plants, having the engine, which corresponds to the motor car motor, and the generator, which is the equivalent of the transmission devices. This has been found to be the most practical and economical method of producing electricity, and it is this idea, carried out, as herein described, that forms one of the most economical ways of transmitting the power of a motor car motor to the road wheels through a system based on mechanical principles. It should appeal to most engineers as being one of the best and most practical methods of obtaining the result desired.

Tests of Various Kinds

The saving of power, as above stated, is based principally upon hill-climbing tests which were made with several cars equipped with the unit transmission system. I have been present at a number of these tests, and have driven some of these cars, which were equipped with the transmission on the subframe, and have noted carefully the working of all parts of the car. I have also taken the same cars equipped with the transmission axle and in repeating the same tests have found that there is a very considerable increase in both speed and ease with which the motor will handle the car on the same hills.

I have also made certain speed tests with a car, with all parts in good condition. The motor at its very best was unable to secure, on good roads, more than 40 to 45 miles per hour, while the same car equipped with the transmission axle and with all conditions as nearly alike as possible, would develop, with ease, 55 miles and even as much as 60 miles per hour. These and other efficiency tests tend to prove that the unit system of power transmission is without question one of the long-looked-for improvements in motor car design.

There are a number of arguments advanced in favor of the side chain drive for heavy cars. A car equipped with this

drive, all adjustments being as correct as they were when leaving the manufacturer's hands, or as they were intended to be by the designing engineer, will prove efficient to a certain degree. There are, however, a number of annoyances connected with this system of propelling a vehicle that are very unpleasant, the principal one being the noise caused by the chains. It is essential, in this design, to have what is commonly called a radius rod to insure the proper distance between the centers of the sprockets. These are frequently adjusted to different distances, causing the chain to ride on the side of the sprocket, adding undue wear.

Protection an Important Factor

There are a large number of cars equipped with this system that are not provided with cases to protect them from dust and dirt, which quickly cause an extreme amount of wear, as the accumulation of dirt upon these parts absorbs the oil or grease used for lubrication, and it is only a matter of a short time until the correct pitch of the sprocket and chains is destroyed, and it is at this time that the greatest inefficiency must arise. I have also noticed on a number of chain-driven cars, owing to the improper adjustments of the radius rods, that the rear axle does not sit square or at right angles to the center of the car, which causes friction and undue strains upon the bearings, sprockets, chains, as well as excessive wear on the tires.

While we have a few of these discrepancies in the bevel-gear drive, it must be conceded that all the gears and other parts of the construction are properly protected from dust and dirt, and that at all times it has a sufficient amount of lubrication, which not only adds to the life of the parts, but reduces the friction, especially when working under excessive strains. Quite a large number, if not all, of these imperfections have been overcome in the unit transmission system, and the last, but not least, important feature of this system is the silence with which it transmits the power. I should say that it is physically impossible to obtain as quiet a running car with either the side-chain drive or with the car equipped with the transmission on the subframe and using the plain type axle, as it is with the unit system as has been herein described. Abroad the unit transmission system has had a limited following and certain workers have successfully used ingenious modifications of it on heavy and light cars.

